Chemical Analysis Report

NW-DIST-2022-09-02-02

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

Event Description: **Rest Area Run Bioassessment**
Request ID: **RQ-2022-08-29-46**
Customer: **NW-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 21-SEP-2022 10:29

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: Rest Area Run below Beaver Pond Creek **Collection Date/Time: 09/01/2022 13:00**

Field ID: G5NW0068 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2354010	DEP SOP: NU-094-1	Color (true)	98		PCU	P419198	
	EPA 180.1 Rev. 2.0	Turbidity	7.4	A	NTU	P419082	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P419739	
		Sulfate	1.8		mg SO4/L	P419742	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P419412	
	SM 2540 C-2011	TDS	61		mg/L	P419415	
	SM 2540 D-2011	TSS	2	I	mg/L	P419314	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P419390	
2354013	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P419171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P419365	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P419250	
	SM 5310 B-2011	Organic Carbon	8.7		mg C/L	P419352	
2354022	EPA 200.7 Rev. 4.4	Calcium	4.26		mg/L	P419177	
		Iron	940		ug/L	P419177	
		Magnesium	1.28		mg/L	P419177	
		Potassium	1.5		mg/L	P419177	
		Sodium	4.9		mg/L	P419177	
		Strontium	16.6		ug/L	P419177	
		Tin	3.0	U	ug/L	P419177	
		Titanium	2.1	I	ug/L	P419177	
		Vanadium	2.0	U	ug/L	P419177	
		Zinc	5.0	U	ug/L	P419177	
	EPA 200.8 Rev. 5.4	Aluminum	205		ug/L	P419177	
		Antimony	0.050	U	ug/L	P419177	
		Arsenic	0.67		ug/L	P419177	
		Barium	19.0		ug/L	P419177	
		Beryllium	0.018	I	ug/L	P419177	
		Boron	27.5		ug/L	P419177	
		Cadmium	0.020	U	ug/L	P419177	
		Chromium	0.57	I	ug/L	P419177	
		Cobalt	0.139		ug/L	P419177	
		Copper	0.40	U	ug/L	P419177	
		Lead	0.24	I	ug/L	P419177	
		Manganese	12.1		ug/L	P419177	
		Molybdenum	0.15	U	ug/L	P419177	
		Nickel	0.51	I	ug/L	P419177	
		Selenium	0.20	U	ug/L	P419177	
		Silver	0.010	U	ug/L	P419177	
		Thallium	0.10	U	ug/L	P419177	
	SM 2340 B-2011	Hardness	15.9		mg/L	P419177	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Beaver Pond Creek **Collection Date/Time: 09/01/2022 13:05**

Field ID: 33010066 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2354011	DEP SOP: NU-094-1	Color (true)	130		PCU	P419199	
	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P419082	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P419739	
		Sulfate	1.7		mg SO4/L	P419742	
	SM 2320 B-2011	Total Alkalinity	58		mg CaCO3/L	P419601	
	SM 2540 C-2011	TDS	129		mg/L	P419415	
	SM 2540 D-2011	TSS	11		mg/L	P419314	
	SM 4500-F- C-2011	Fluoride	0.060	I	mg F/L	P419604	
2354014	EPA 350.1 Rev. 2.0	Ammonia-N	0.082		mg N/L	P419310	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P419171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P419365	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P419343	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P419352	
2354023	EPA 200.7 Rev. 4.4	Calcium	17.3		mg/L	P419177	
		Iron	3.78E+03		ug/L	P419177	
		Magnesium	2.79		mg/L	P419177	
		Potassium	3.2		mg/L	P419177	
		Sodium	7.5		mg/L	P419177	
		Strontium	48.0		ug/L	P419177	
		Tin	3.0	U	ug/L	P419177	
		Titanium	2.4	I	ug/L	P419177	
		Vanadium	2.0	U	ug/L	P419177	
		Zinc	5.0	U	ug/L	P419177	
	EPA 200.8 Rev. 5.4	Aluminum	193		ug/L	P419177	
		Antimony	0.062	I	ug/L	P419177	
		Arsenic	1.80		ug/L	P419177	
		Barium	21.2		ug/L	P419177	
		Beryllium	0.022	I	ug/L	P419177	
		Boron	54.5		ug/L	P419177	
		Cadmium	0.020	U	ug/L	P419177	
		Chromium	0.88	I	ug/L	P419177	
		Cobalt	0.340		ug/L	P419177	
		Copper	0.64	I	ug/L	P419177	
		Lead	0.32	I	ug/L	P419177	
		Manganese	126		ug/L	P419177	
		Molybdenum	0.23	I	ug/L	P419177	
		Nickel	0.82	I	ug/L	P419177	
		Selenium	0.20	U	ug/L	P419177	
		Silver	0.010	U	ug/L	P419177	
		Thallium	0.10	U	ug/L	P419177	
	SM 2340 B-2011	Hardness	54.6		mg/L	P419177	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500-F- C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Tributary South of Perdido Landfill **Collection Date/Time: 09/01/2022 14:05**

Field ID: G5NW0050 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2354012	DEP SOP: NU-094-1	Color (true)	110	A	PCU	P419199	
	EPA 180.1 Rev. 2.0	Turbidity	37		NTU	P419082	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P419739	
		Sulfate	7.4		mg SO4/L	P419742	
	SM 2320 B-2011	Total Alkalinity	90		mg CaCO3/L	P419601	
	SM 2540 C-2011	TDS	203		mg/L	P419415	
	SM 2540 D-2011	TSS	18		mg/L	P419314	
	SM 4500-F- C-2011	Fluoride	0.070	I	mg F/L	P419604	
2354015	EPA 350.1 Rev. 2.0	Ammonia-N	2.0		mg N/L	P419310	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.4		mg N/L	P419171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P419365	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P419343	
	SM 5310 B-2011	Organic Carbon	22		mg C/L	P419352	
2354024	EPA 200.7 Rev. 4.4	Calcium	24.5		mg/L	P419177	
		Iron	4.74E+03		ug/L	P419177	
		Magnesium	4.38		mg/L	P419177	
		Potassium	12.3		mg/L	P419177	
		Sodium	31.0		mg/L	P419177	
		Strontium	68.3		ug/L	P419177	
		Tin	3.1	I	ug/L	P419177	
		Titanium	3.0		ug/L	P419177	
		Vanadium	2.0	I	ug/L	P419177	
		Zinc	5.0	U	ug/L	P419177	
	EPA 200.8 Rev. 5.4	Aluminum	292		ug/L	P419177	
		Antimony	0.16	I	ug/L	P419177	
		Arsenic	3.58		ug/L	P419177	
		Barium	30.2		ug/L	P419177	
		Beryllium	0.021	I	ug/L	P419177	
		Boron	189		ug/L	P419177	
		Cadmium	0.020	U	ug/L	P419177	
		Chromium	4.3		ug/L	P419177	
		Cobalt	0.766		ug/L	P419177	
		Copper	1.05		ug/L	P419177	
		Lead	0.78		ug/L	P419177	
		Manganese	186		ug/L	P419177	
		Molybdenum	0.33	I	ug/L	P419177	
		Nickel	2.3		ug/L	P419177	
		Selenium	0.29	I	ug/L	P419177	
		Silver	0.010	U	ug/L	P419177	
		Thallium	0.10	U	ug/L	P419177	
	SM 2340 B-2011	Hardness	79.2		mg/L	P419177	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500-F- C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P419198

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P419199

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419082

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P419177

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: P419177

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: P419739

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419742

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419143

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419310

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419171

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419365

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419343

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

Reference Method: SM 2320 B-2011
Batch ID: P419412

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P419601

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

Reference Method: SM 2540 C-2011
Batch ID: P419415

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P419314

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P419390

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P419604

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P419352

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: P419198

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

Reference Method: DEP SOP: NU-094-1
Batch ID: P419199

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	97.0		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P419177

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	111		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	108		P	85 - 115
Sodium	107		P	85 - 115
Strontium	110		P	85 - 115
Tin	111		P	85 - 115
Titanium	108		P	85 - 115
Vanadium	107		P	85 - 115
Zinc	110		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P419177

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	103		P	85 - 115
Arsenic	104		P	85 - 115
Barium	107		P	85 - 115
Beryllium	98.1		P	85 - 115
Boron	105		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	101		P	85 - 115
Cobalt	101		P	85 - 115
Copper	102		P	85 - 115
Lead	96.6		P	85 - 115
Manganese	102		P	85 - 115
Molybdenum	101		P	85 - 115
Nickel	103		P	85 - 115
Selenium	102		P	85 - 115
Silver	89.3		P	85 - 115
Thallium	102		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419739

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419742

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: P419143

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419171

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419365

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419343

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

Reference Method: SM 2320 B-2011
Batch ID: P419412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	94 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P419601

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P419390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P419604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P419352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P419177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353696	Calcium	106		P	80 - 120
2353696	Iron	107	109	P/P	80 - 120
2353696	Magnesium	104		P	80 - 120
2353696	Potassium	105		P	80 - 120
2353696	Sodium	105		P	80 - 120
2353696	Strontium	105	107	P/P	80 - 120
2353696	Tin	106	108	P/P	80 - 120
2353696	Titanium	103	106	P/P	80 - 120
2353696	Vanadium	102	105	P/P	80 - 120
2353696	Zinc	104	106	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P419177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353696	Aluminum	102	99.2	P/P	80 - 120
2353696	Antimony	104	103	P/P	80 - 120
2353696	Arsenic	105	103	P/P	80 - 120
2353696	Barium	106	103	P/P	80 - 120
2353696	Beryllium	101	99.0	P/P	80 - 120
2353696	Boron	106	99.4	P/P	80 - 120
2353696	Cadmium	100	98.2	P/P	80 - 120
2353696	Chromium	105	101	P/P	80 - 120
2353696	Cobalt	102	98.9	P/P	80 - 120
2353696	Copper	101	97.6	P/P	80 - 120
2353696	Lead	97.7	95.3	P/P	80 - 120
2353696	Manganese	104	101	P/P	80 - 120
2353696	Molybdenum	103	101	P/P	80 - 120
2353696	Nickel	103	100	P/P	80 - 120
2353696	Selenium	101	100	P/P	80 - 120
2353696	Silver	88.8	87.5	P/P	80 - 120
2353696	Thallium	105	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353690	Chloride	98.2		P	90 - 110
2354011	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353690	Sulfate	95.1		P	90 - 110
2354011	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353960	Ammonia-N	95.6	97.0	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353651	Ammonia-N	98.4	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354014	NO2NO3-N	96.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354013	Total-P	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419343

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354141	Total-P	105	108	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P419390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353959	Fluoride	98.5	98.5	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P419352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354070	Organic Carbon	97.1	98.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P419198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353863	Color (true)	0.336	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P419199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354012	Color (true)	0.863	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P419082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354010	Turbidity	1.08	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P419177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353696	Calcium	1.77	Spike	P	0 - 20
2353696	Iron	1.92	Spike	P	0 - 20
2353696	Magnesium	2.60	Spike	P	0 - 20
2353696	Potassium	2.18	Spike	P	0 - 20
2353696	Sodium	2.27	Spike	P	0 - 20
2353696	Strontium	1.71	Spike	P	0 - 20
2353696	Tin	2.46	Spike	P	0 - 20
2353696	Titanium	2.87	Spike	P	0 - 20
2353696	Vanadium	2.91	Spike	P	0 - 20
2353696	Zinc	2.67	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P419177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353696	Aluminum	2.97	Spike	P	0 - 20
2353696	Antimony	1.25	Spike	P	0 - 20
2353696	Arsenic	2.11	Spike	P	0 - 20
2353696	Barium	1.83	Spike	P	0 - 20
2353696	Beryllium	1.49	Spike	P	0 - 20
2353696	Boron	5.27	Spike	P	0 - 20
2353696	Cadmium	2.29	Spike	P	0 - 20
2353696	Chromium	3.43	Spike	P	0 - 20
2353696	Cobalt	2.88	Spike	P	0 - 20
2353696	Copper	3.13	Spike	P	0 - 20
2353696	Lead	2.51	Spike	P	0 - 20
2353696	Manganese	2.20	Spike	P	0 - 20
2353696	Molybdenum	2.21	Spike	P	0 - 20
2353696	Nickel	2.94	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P419177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353696	Selenium	0.947	Spike	P	0 - 20
2353696	Silver	1.47	Spike	P	0 - 20
2353696	Thallium	2.23	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353690	Chloride	0.00596	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P419742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353690	Sulfate	0.105	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353960	Ammonia-N	1.21	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353651	Ammonia-N	0.187	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353889	Kjeldahl Nitrogen	4.71	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354014	NO2NO3-N	0.505	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

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

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354013	Total-P	1.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419343

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354141	Total-P	1.59	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P419412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354578	Total Alkalinity	0.598	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P419601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354534	Total Alkalinity	0.353	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P419415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353828	TDS	7.89	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P419390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353959	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P419604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354534	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P419352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354070	Organic Carbon	1.21	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A114527
Included Lab Sample IDs: 2354010, 2354011, 2354012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A114549
Included Lab Sample IDs: 2354013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	98.0	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1
Run ID: A114577
Included Lab Sample IDs: 2354010, 2354011, 2354012

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A114588
Included Lab Sample IDs: 2354022, 2354023, 2354024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	103	P/P	90 - 110
Iron	106	105	P/P	90 - 110
Magnesium	105	105	P/P	90 - 110
Potassium	106	104	P/P	90 - 110
Sodium	105	103	P/P	90 - 110
Strontium	103	102	P/P	90 - 110
Tin	105	102	P/P	90 - 110
Titanium	102	99.4	P/P	90 - 110
Vanadium	101	98.5	P/P	90 - 110
Zinc	105	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A114593
Included Lab Sample IDs: 2354022, 2354023, 2354024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	101	P/P	90 - 110
Antimony	99.8	101	P/P	90 - 110
Arsenic	104	106	P/P	90 - 110
Barium	102	102	P/P	90 - 110
Beryllium	99.3	97.1	P/P	90 - 110
Boron	101	101	P/P	90 - 110
Cadmium	103	103	P/P	90 - 110
Chromium	103	105	P/P	90 - 110
Cobalt	101	102	P/P	90 - 110
Copper	103	104	P/P	90 - 110
Lead	94.7	94.3	P/P	90 - 110
Manganese	104	104	P/P	90 - 110
Molybdenum	100	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A114593
Included Lab Sample IDs: 2354022, 2354023, 2354024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	103	103	P/P	90 - 110
Selenium	103	105	P/P	90 - 110
Silver	99.0	99.8	P/P	90 - 110
Thallium	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A114608
Included Lab Sample IDs: 2354013, 2354014, 2354015

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A114613
Included Lab Sample IDs: 2354014, 2354015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	97.3	P/P	90 - 110
Ammonia-N	99.1	98.9	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A114631
Included Lab Sample IDs: 2354013, 2354014, 2354015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	96.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A114640
Included Lab Sample IDs: 2354013, 2354014, 2354015

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114650
Included Lab Sample IDs: 2354013

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A114659
Included Lab Sample IDs: 2354023, 2354024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Molybdenum	96.4	96.9	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A114660
Included Lab Sample IDs: 2354010

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

Reference Method: SM 2320 B-2011
Run ID: A114670
Included Lab Sample IDs: 2354010

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114672
Included Lab Sample IDs: 2354015

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114681
Included Lab Sample IDs: 2354014

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	100	P/P	90 - 110

Reference Method: SM 2320 B-2011
Run ID: A114732
Included Lab Sample IDs: 2354011, 2354012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	98.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A114732
Included Lab Sample IDs: 2354011, 2354012

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A114789
Included Lab Sample IDs: 2354010, 2354011, 2354012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	101	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)	101				0.336	
	Color (true)	102				0.863	
EPA 180.1 Rev. 2.0	Turbidity	97.0				1.08	
EPA 200.7 Rev. 4.4	Calcium	106	106				1.77
	Iron	111	107	109			1.92
	Magnesium	105	104				2.60
	Potassium	108	105				2.18
	Sodium	107	105				2.27
	Strontium	110	105	107			1.71
	Tin	111	106	108			2.46
	Titanium	108	103	106			2.87
	Vanadium	107	102	105			2.91
	Zinc	110	104	106			2.67
EPA 200.8 Rev. 5.4	Aluminum	102	102	99.2			2.97
	Antimony	103	104	103			1.25
	Arsenic	104	105	103			2.11
	Barium	107	106	103			1.83
	Beryllium	98.1	101	99.0			1.49
	Boron	105	106	99.4			5.27
	Cadmium	101	100	98.2			2.29
	Chromium	101	105	101			3.43
	Cobalt	101	102	98.9			2.88
	Copper	102	101	97.6			3.13
	Lead	96.6	97.7	95.3			2.51
	Manganese	102	104	101			2.20
	Molybdenum	101	103	101			2.21
	Nickel	103	103	100			2.94
	Selenium	102	101	100			0.947
	Silver	89.3	88.8	87.5			1.47
	Thallium	102	105	102			2.23
EPA 300.0 Rev. 2.1	Chloride	98.8	98.2	98.4		0.0059	
	Sulfate	98.2	95.1	97.6		0.105	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	95.6	97.0			1.21
	Ammonia-N	98.0	98.4	98.2			0.187
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100					4.71
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.5	97.5			0.505
EPA 365.1 Rev. 2.0	Total-P	107	108	107			1.15
	Total-P	104	105	108			1.59
SM 2320 B-2011	Total Alkalinity	99.7				0.598	
	Total Alkalinity	101				0.353	
SM 2540 C-2011	TDS					7.89	
SM 4500-F- C-2011	Fluoride	101	98.5	98.5			0.0
	Fluoride	99.3					0.0
SM 5310 B-2011	Organic Carbon	96.0	97.1	98.7			1.21

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2354010, 2354011, 2354012
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2354010, 2354011, 2354012
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2354022, 2354023, 2354024

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	2354022, 2354023, 2354024
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2354010, 2354011, 2354012
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2354010, 2354011, 2354012
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2354013, 2354014, 2354015
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2354013, 2354014, 2354015
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2354013, 2354014, 2354015
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2354013, 2354014, 2354015
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2354010, 2354011, 2354012
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2354022, 2354023, 2354024
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2354010, 2354011, 2354012
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2354010, 2354011, 2354012
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2354010, 2354011, 2354012
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2354013, 2354014, 2354015

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	09/02/2022			09/02/2022 14:47	Blanca Fach	2354010
	09/02/2022			09/02/2022 15:12	Blanca Fach	2354011, 2354012
EPA 180.1 Rev. 2.0	09/02/2022			09/02/2022 13:03	Chandler E Cox	2354010
	09/02/2022			09/02/2022 13:08	Chandler E Cox	2354011
	09/02/2022			09/02/2022 13:10	Chandler E Cox	2354012
EPA 200.7 Rev. 4.4	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/07/2022 19:27	McKinley C Carter	2354022
	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/07/2022 19:34	McKinley C Carter	2354023
	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/07/2022 19:42	McKinley C Carter	2354024
EPA 200.8 Rev. 5.4	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/07/2022 18:39	Megan Whitefoot	2354022
	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/07/2022 18:48	Megan Whitefoot	2354023
	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/07/2022 18:58	Megan Whitefoot	2354024
	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/09/2022 19:38	Emily M Philpot	2354023
	09/02/2022	09/07/2022 09:55	Megan Whitefoot	09/09/2022 19:47	Emily M Philpot	2354024
EPA 300.0 Rev. 2.1	09/02/2022			09/14/2022 18:22	Anna M. Plaviak	2354011
	09/02/2022			09/14/2022 22:09	Anna M. Plaviak	2354010
	09/02/2022			09/14/2022 22:24	Anna M. Plaviak	2354012
EPA 350.1 Rev. 2.0	09/02/2022			09/06/2022 12:17	Ping Hua	2354013
	09/02/2022			09/08/2022 13:26	Ping Hua	2354014
	09/02/2022			09/08/2022 14:21	Ping Hua	2354015
EPA 351.2 Rev. 2.0	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 10:43	Samantha L Bates	2354013
	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 10:44	Samantha L Bates	2354014
	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 10:46	Samantha L Bates	2354015
EPA 353.2 Rev. 2.0	09/02/2022			09/09/2022 10:05	Beverly Y. Sanders	2354014
	09/02/2022			09/09/2022 10:11	Beverly Y. Sanders	2354013
	09/02/2022			09/09/2022 10:12	Beverly Y. Sanders	2354015
EPA 365.1 Rev. 2.0	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 14:28	James L Waggerby	2354013
	09/02/2022	09/09/2022 16:30	Adam P Silver	09/12/2022 10:46	James L Waggerby	2354015
	09/02/2022	09/09/2022 16:30	Adam P Silver	09/12/2022 14:11	Simonne.V. Calhoun	2354014
SM 2320 B-2011	09/02/2022			09/12/2022 02:11	Dale L. Simmons	2354010
	09/02/2022			09/13/2022 22:52	Dale L. Simmons	2354011
	09/02/2022			09/13/2022 23:04	Dale L. Simmons	2354012
SM 2340 B-2011	09/02/2022			09/07/2022 19:27	McKinley C Carter	2354022
	09/02/2022			09/07/2022 19:34	McKinley C Carter	2354023
	09/02/2022			09/07/2022 19:42	McKinley C Carter	2354024
SM 2540 C-2011	09/02/2022			09/07/2022 13:56	Yijie Li	2354010, 2354011, 2354012
SM 2540 D-2011	09/02/2022			09/07/2022 13:56	Yijie Li	2354010, 2354011, 2354012
SM 4500-F- C-2011	09/02/2022			09/09/2022 16:36	Dale L. Simmons	2354010
	09/02/2022			09/13/2022 22:52	Dale L. Simmons	2354011
	09/02/2022			09/13/2022 23:04	Dale L. Simmons	2354012
SM 5310 B-2011	09/02/2022			09/08/2022 17:49	Khloe J Berg	2354013

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	09/02/2022			09/08/2022 18:03	Khloe J Berg	2354014
	09/02/2022			09/08/2022 18:17	Khloe J Berg	2354015