

Chemical Analysis Report

SW-DIST-2022-08-04-01

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

Event Description: **SMP: Run 19 Nutrients**

Request ID: **RQ-2022-08-01-16**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

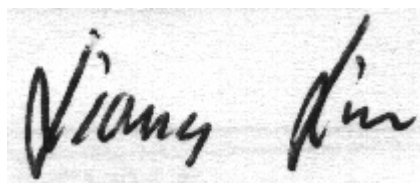
FL Dept. of Environmental Protection
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Temple Terrace, FL 33637-0926
Attn: Bne Paswater

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 26-AUG-2022 15:00

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: Clark Lake @ NW Lobe

Collection Date/Time: 08/03/2022 11:10

Field ID: G3SW0105

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2346091	DEP SOP: NU-094-1	Color (true)	29		PCU	P417683	
	EPA 180.1 Rev. 2.0	Turbidity	36		NTU	P417669	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P418020	
		Sulfate	130		mg SO4/L	P418212	
	SM 2320 B-2011	Total Alkalinity	83		mg CaCO3/L	P418046	
	SM 2540 C-2011	TDS	610		mg/L	P418183	
	SM 2540 D-2011	TSS	44	I	mg/L	P418227	
	SM 4500-F- C-2011	Fluoride	0.76		mg F/L	P418050	
2346092	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P417972	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	6.7		mg N/L	P417798	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417754	
	EPA 365.1 Rev. 2.0	Total-P	0.35		mg P/L	P417792	
	SM 5310 B-2011	Organic Carbon	29		mg C/L	P417813	

Ref. Method and Comment:

SM 2540 D-2011: The PQL was elevated because of sample matrix interference.

Sample Location: Hudson Bayou Tidal by Marie Selby Botanical Gardens **Collection Date/Time: 08/03/2022 11:40**

Field ID: G3SW0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2346094	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P417669	
	SM 2320 B-2011	Total Alkalinity	126		mg CaCO3/L	P417976	
	SM 2540 D-2011	TSS	8	IA	mg/L	P418234	
	SM 4500-F- C-2011	Fluoride	1.2		mg F/L	P417978	
2346095	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P418327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P417713	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417823	
	EPA 365.1 Rev. 2.0	Total-P	0.097		mg P/L	P417791	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P417900	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Island Park Boat Basin off Dock

Collection Date/Time: 08/03/2022 12:10

Field ID: G3SW0061

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2346097	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P417669	
	SM 2320 B-2011	Total Alkalinity	119		mg CaCO3/L	P417976	
	SM 2540 D-2011	TSS	5	I	mg/L	P418234	
	SM 4500-F- C-2011	Fluoride	1.3		mg F/L	P417978	
2346098	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P418414	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P417713	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417823	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P417924	
	SM 5310 B-2011	Organic Carbon	4.3		mg C/L	P417900	
2346105	EPA 200.7 Rev. 4.4	Calcium	392		mg/L	P418009	
		Iron	120	U	ug/L	P418009	
		Magnesium	1.16E+03		mg/L	P418009	
		Strontium	7.32E+03		ug/L	P418009	
		Tin	300	U	ug/L	P418009	
		Titanium	4.2	I	ug/L	P418009	
		Vanadium	8.0	U	ug/L	P418009	
	EPA 200.8 Rev. 5.4	Zinc	20	U	ug/L	P418009	
		Aluminum	64	I	ug/L	P418009	
		Antimony	0.21	I	ug/L	P418009	
		Arsenic	2.60		ug/L	P418009	
		Beryllium	0.040	U	ug/L	P418009	
		Cadmium	0.080	U	ug/L	P418009	
		Chromium	1.6	U	ug/L	P418009	
		Cobalt	0.17	I	ug/L	P418009	
		Copper	2.6	I	ug/L	P418009	
		Lead	2.0	U	ug/L	P418009	
		Manganese	3.5		ug/L	P418009	
		Molybdenum	11.9		ug/L	P418009	
		Nickel	2.0	U	ug/L	P418009	
		Selenium	0.80	U	ug/L	P418009	
		Silver	0.040	U	ug/L	P418009	
		Thallium	1.5	I	ug/L	P418009	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium and strontium are unavailable because of high analyte concentration in the QC sample. Precision data and spike recoveries for tin are unavailable because sample matrix interference necessitated a high dilution.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P417683

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417669

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P418009

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	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: P418009

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	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: P418020

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418212

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417972

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418327

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418414

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417713

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417798

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417754

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417791

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417792

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417924

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

Reference Method: SM 2320 B-2011
Batch ID: P417976

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

Reference Method: SM 2320 B-2011
Batch ID: P418046

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

Reference Method: SM 2540 C-2011
Batch ID: P418183

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P418227

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P418234

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417978

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P418050

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P417813

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P417900

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: P417683

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417669

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.6		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P418009

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	107		P	85 - 115
Magnesium	103		P	85 - 115
Strontium	105		P	85 - 115
Tin	102		P	85 - 115
Titanium	103		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P418009

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	99.9		P	85 - 115
Beryllium	90.7		P	85 - 115
Cadmium	96.6		P	85 - 115
Chromium	98.1		P	85 - 115
Cobalt	94.0		P	85 - 115
Copper	96.7		P	85 - 115
Lead	97.3		P	85 - 115
Manganese	97.8		P	85 - 115
Molybdenum	96.7		P	85 - 115
Nickel	97.4		P	85 - 115
Selenium	98.2		P	85 - 115
Silver	95.7		P	85 - 115
Thallium	96.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418020

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.4		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417972

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418327

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418414

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417713

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417798

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417754

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417823

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: P417791

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: P417792

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417924

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

Reference Method: SM 2320 B-2011
Batch ID: P417976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P418046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.2		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P417978

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

Reference Method: SM 4500-F- C-2011
Batch ID: P418050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417813

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P418009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347800	Iron	94.8	101	P/P	70 - 130
2347800	Titanium	94.4	95.2	P/P	70 - 130
2347800	Vanadium	102	107	P/P	70 - 130
2347800	Zinc	93.2	97.6	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P418009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347800	Aluminum	126	124	P/P	70 - 130
2347800	Antimony	96.4	97.7	P/P	70 - 130
2347800	Arsenic	109	110	P/P	70 - 130
2347800	Beryllium	90.6	97.5	P/P	70 - 130
2347800	Cadmium	91.2	89.3	P/P	70 - 130
2347800	Chromium	96.9	96.2	P/P	70 - 130
2347800	Cobalt	108	110	P/P	70 - 130
2347800	Copper	105	106	P/P	70 - 130
2347800	Lead	99.6	101	P/P	70 - 130
2347800	Manganese	98.6	97.2	P/P	70 - 130
2347800	Molybdenum	113	114	P/P	70 - 130
2347800	Nickel	116	116	P/P	70 - 130
2347800	Selenium	97.0	98.2	P/P	70 - 130
2347800	Silver	85.0	85.7	P/P	70 - 130
2347800	Thallium	102	106	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P418020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345933	Chloride	95.8		P	90 - 110
2346142	Chloride	93.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P418212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346641	Sulfate	96.9		P	90 - 110
2346682	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P417972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344791	Ammonia-N	98.0	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P418327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346095	Ammonia-N	101	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345632	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344932	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346252	Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346030	NO2NO3-N	97.1	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345745	NO2NO3-N	95.3	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345944	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346031	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2347303	Total-P	96.0	98.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345625	Fluoride	98.4	99.3	P/P	94 - 104

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P418050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346364	Fluoride	101	99.6	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346147	Organic Carbon	95.8	95.6	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345626	Organic Carbon	87.4	88.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P417683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345933	Color (true)	13.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345935	Turbidity	0.522	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P418009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347800	Calcium	1.62	Spike	P	0 - 20
2347800	Iron	5.18	Spike	P	0 - 20
2347800	Magnesium	1.80	Spike	P	0 - 20
2347800	Strontium	2.57	Spike	P	0 - 20
2347800	Titanium	0.619	Spike	P	0 - 20
2347800	Vanadium	4.38	Spike	P	0 - 20
2347800	Zinc	4.59	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P418009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347800	Aluminum	0.704	Spike	P	0 - 20
2347800	Antimony	1.35	Spike	P	0 - 20
2347800	Arsenic	1.35	Spike	P	0 - 20
2347800	Beryllium	6.77	Spike	P	0 - 20
2347800	Cadmium	2.16	Spike	P	0 - 20
2347800	Chromium	0.614	Spike	P	0 - 20
2347800	Cobalt	1.69	Spike	P	0 - 20
2347800	Copper	0.647	Spike	P	0 - 20
2347800	Lead	1.05	Spike	P	0 - 20
2347800	Manganese	0.835	Spike	P	0 - 20
2347800	Molybdenum	0.705	Spike	P	0 - 20
2347800	Nickel	0.524	Spike	P	0 - 20
2347800	Selenium	1.25	Spike	P	0 - 20
2347800	Silver	0.851	Spike	P	0 - 20
2347800	Thallium	4.01	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345933	Chloride	0.0887	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P418212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346641	Sulfate	2.77	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344791	Ammonia-N	0.749	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346095	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345632	Ammonia-N	1.65	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344932	Kjeldahl Nitrogen	1.71	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346252	Kjeldahl Nitrogen	1.77	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346030	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345745	NO2NO3-N	0.526	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345944	Total-P	0.367	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346031	Total-P	0.917	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2347303	Total-P	2.44	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P417976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345625	Total Alkalinity	0.348	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P418046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346364	Total Alkalinity	1.24	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P418183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346156	TDS	4.15	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P418227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346156	TSS	7.41	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345625	Fluoride	0.470	Spike	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P418050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346364	Fluoride	0.953	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P417813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346147	Organic Carbon	0.202	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P417900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345626	Organic Carbon	1.16	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: A113916

Included Lab Sample IDs: 2346091, 2346094, 2346097

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

Reference Method: DEP SOP: NU-094-1

Run ID: A113919

Included Lab Sample IDs: 2346091

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113955

Included Lab Sample IDs: 2346092

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

Reference Method: SM 5310 B-2011

Run ID: A113980

Included Lab Sample IDs: 2346092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113985

Included Lab Sample IDs: 2346095, 2346098

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

Reference Method: SM 5310 B-2011

Run ID: A114005

Included Lab Sample IDs: 2346095, 2346098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114026

Included Lab Sample IDs: 2346095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A114030

Included Lab Sample IDs: 2346092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A114031

Included Lab Sample IDs: 2346094, 2346097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	99.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A114031

Included Lab Sample IDs: 2346094, 2346097

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114036

Included Lab Sample IDs: 2346098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114046

Included Lab Sample IDs: 2346095, 2346098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.6	96.6	P/P	90 - 110
Kjeldahl Nitrogen	96.6	94.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A114048

Included Lab Sample IDs: 2346091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114051

Included Lab Sample IDs: 2346092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.6	92.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A114059

Included Lab Sample IDs: 2346091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	97.5	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A114059

Included Lab Sample IDs: 2346091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 4500-F- C-2011
Run ID: A114059
Included Lab Sample IDs: 2346091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A114078
Included Lab Sample IDs: 2346105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Antimony	95.5	95.9	P/P	90 - 110
Arsenic	100	98.9	P/P	90 - 110
Beryllium	99.0	100	P/P	90 - 110
Cadmium	98.6	98.3	P/P	90 - 110
Chromium	98.9	96.1	P/P	90 - 110
Cobalt	99.1	98.4	P/P	90 - 110
Copper	103	102	P/P	90 - 110
Manganese	100	99.9	P/P	90 - 110
Molybdenum	95.9	95.0	P/P	90 - 110
Nickel	103	102	P/P	90 - 110
Selenium	98.9	99.7	P/P	90 - 110
Silver	94.9	93.9	P/P	90 - 110
Thallium	100	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A114104
Included Lab Sample IDs: 2346092

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.1	92.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A114110
Included Lab Sample IDs: 2346105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	94.9	95.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A114142
Included Lab Sample IDs: 2346091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	99.3	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A114156
Included Lab Sample IDs: 2346105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	99.9	P/P	90 - 110
Iron	100	99.4	P/P	90 - 110
Magnesium	99.4	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A114156

Included Lab Sample IDs: 2346105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Strontium	99.6	96.5	P/P	90 - 110
Tin	101	99.3	P/P	90 - 110
Titanium	99.1	98.9	P/P	90 - 110
Vanadium	99.4	99.2	P/P	90 - 110
Zinc	101	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A114189

Included Lab Sample IDs: 2346095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A114221

Included Lab Sample IDs: 2346098

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	105				13.0	
EPA 180.1 Rev. 2.0	Turbidity	96.6				0.522	
EPA 200.7 Rev. 4.4	Calcium	106					1.62
	Iron	107	94.8	101			5.18
	Magnesium	103					1.80
	Strontium	105					2.57
	Tin	102					
	Titanium	103	94.4	95.2			0.619
	Vanadium	103	102	107			4.38
	Zinc	104	93.2	97.6			4.59
EPA 200.8 Rev. 5.4	Aluminum	100	126	124			0.704
	Antimony	100	96.4	97.7			1.35
	Arsenic	99.9	109	110			1.35
	Beryllium	90.7	90.6	97.5			6.77
	Cadmium	96.6	91.2	89.3			2.16
	Chromium	98.1	96.9	96.2			0.614
	Cobalt	94.0	108	110			1.69
	Copper	96.7	105	106			0.647
	Lead	97.3	99.6	101			1.05
	Manganese	97.8	98.6	97.2			0.835
	Molybdenum	96.7	113	114			0.705
	Nickel	97.4	116	116			0.524
	Selenium	98.2	97.0	98.2			1.25
	Silver	95.7	85.0	85.7			0.851
	Thallium	96.1	102	106			4.01
EPA 300.0 Rev. 2.1	Chloride	101	95.8	93.6		0.0887	
	Sulfate	98.4	96.9	99.0		2.77	
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	98.0	99.4			0.749
	Ammonia-N	97.6	101	102			1.06
	Ammonia-N	97.6	101	103			1.65
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	105	103			1.71
	Kjeldahl Nitrogen	97.8	101	104			1.77
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	97.1	98.1			0.976
	NO2NO3-N	100	95.3	94.8			0.526
EPA 365.1 Rev. 2.0	Total-P	107	106	106			0.367
	Total-P	102	104	105			0.917
	Total-P	103	96.0	98.4			2.44
SM 2320 B-2011	Total Alkalinity	99.1				0.348	
	Total Alkalinity	99.2				1.24	
SM 2540 C-2011	TDS					4.15	
SM 2540 D-2011	TSS					7.41	
SM 4500-F- C-2011	Fluoride	101	98.4	99.3			0.470
	Fluoride	100	101	99.6			0.953
SM 5310 B-2011	Organic Carbon	97.8	95.8	95.6			0.202
	Organic Carbon	99.4	87.4	88.9			1.16

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2346091
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2346091, 2346094, 2346097
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2346105

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	2346105
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2346091
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2346091
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2346092, 2346095, 2346098
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2346092, 2346095, 2346098
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2346092, 2346095, 2346098
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2346092, 2346095, 2346098
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2346091, 2346094, 2346097
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2346091
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2346091, 2346094, 2346097
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2346091, 2346094, 2346097
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2346092, 2346095, 2346098

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	08/04/2022			08/04/2022 15:58	Blanca Fach	2346091
EPA 180.1 Rev. 2.0	08/04/2022			08/04/2022 13:55	Anna M. Plaviak	2346091
	08/04/2022			08/04/2022 13:57	Anna M. Plaviak	2346094
	08/04/2022			08/04/2022 13:58	Anna M. Plaviak	2346097
EPA 200.7 Rev. 4.4	08/04/2022	08/12/2022 09:18	Mackenzie Hunt	08/16/2022 19:39	McKinley C Carter	2346105
	08/04/2022	08/12/2022 09:18	Mackenzie Hunt	08/16/2022 19:47	McKinley C Carter	2346105
EPA 200.8 Rev. 5.4	08/04/2022	08/12/2022 09:18	Mackenzie Hunt	08/12/2022 16:49	Emily M Philpot	2346105
	08/04/2022	08/12/2022 09:18	Mackenzie Hunt	08/12/2022 20:21	Emily M Philpot	2346105
	08/04/2022	08/12/2022 09:18	Mackenzie Hunt	08/15/2022 21:02	Alexander Thompson	2346105
EPA 300.0 Rev. 2.1	08/04/2022			08/11/2022 17:41	Anna M. Plaviak	2346091
	08/04/2022			08/16/2022 14:37	Anna M. Plaviak	2346091
EPA 350.1 Rev. 2.0	08/04/2022			08/11/2022 11:01	Ping Hua	2346092
	08/04/2022			08/18/2022 11:00	Ping Hua	2346095
	08/04/2022			08/19/2022 11:57	Judith K. Clark	2346098
EPA 351.2 Rev. 2.0	08/04/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 14:02	Alexandra J Mattheus	2346095
	08/04/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 14:07	Alexandra J Mattheus	2346098
	08/04/2022	08/09/2022 15:01	Alexandra J Mattheus	08/15/2022 14:11	Samantha L Bates	2346092
EPA 353.2 Rev. 2.0	08/04/2022			08/08/2022 10:00	Beverly Y. Sanders	2346092
	08/04/2022			08/09/2022 12:17	Beverly Y. Sanders	2346095
	08/04/2022			08/09/2022 12:18	Beverly Y. Sanders	2346098
EPA 365.1 Rev. 2.0	08/04/2022	08/09/2022 09:37	Simonne.V. Calhoun	08/11/2022 11:22	Simonne.V. Calhoun	2346095
	08/04/2022	08/09/2022 09:37	Simonne.V. Calhoun	08/12/2022 10:09	James L Waggeberby	2346092
	08/04/2022	08/10/2022 16:53	Adam P Silver	08/11/2022 13:06	Simonne.V. Calhoun	2346098
SM 2320 B-2011	08/04/2022			08/11/2022 00:02	Dale L. Simmons	2346094
	08/04/2022			08/11/2022 00:15	Dale L. Simmons	2346097
	08/04/2022			08/12/2022 03:38	Dale L. Simmons	2346091
SM 2540 C-2011	08/04/2022			08/09/2022 15:22	Yijie Li	2346091
SM 2540 D-2011	08/04/2022			08/09/2022 15:22	Yijie Li	2346091, 2346094, 2346097
SM 4500-F- C-2011	08/04/2022			08/10/2022 21:38	Dale L. Simmons	2346094
	08/04/2022			08/10/2022 22:28	Dale L. Simmons	2346097
	08/04/2022			08/12/2022 03:38	Dale L. Simmons	2346091
SM 5310 B-2011	08/04/2022			08/08/2022 16:11	Khloe J Berg	2346092
	08/04/2022			08/10/2022 04:11	Khloe J Berg	2346095
	08/04/2022			08/10/2022 04:30	Khloe J Berg	2346098