

Chemical Analysis Report

CEN-DIST-2022-08-03-01

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

Event Description: **Bird Lake Slough x2, Bird Lake Trib**
Request ID: **RQ-2022-08-01-35**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:

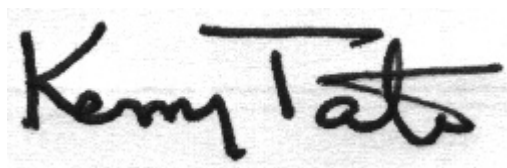
FL Dept. of Environmental Protection
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Attn: Matthew Bearden

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

Date Certified: 23-AUG-2022 08:56

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Bird Lake Ditches 1.2mi W of 95

Collection Date/Time: 08/02/2022 10:37

Field ID: G3CE0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345527	DEP SOP: NU-094-1	Color (true)	260		PCU	P417582	
	EPA 180.1 Rev. 2.0	Turbidity	8.3		NTU	P417588	
	EPA 300.0 Rev. 2.1	Chloride	590		mg Cl/L	P417883	
		Sulfate	88		mg SO4/L	P417888	
	SM 2320 B-2011	Total Alkalinity	170		mg CaCO3/L	P417842	
	SM 2540 C-2011	TDS	1.25E+03		mg/L	P417987	
	SM 2540 D-2011	TSS	5	I	mg/L	P418066	
	SM 4500-F- C-2011	Fluoride	0.13		mg F/L	P417847	
2345528	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P417776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P417712	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P417718	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P417785	
	SM 5310 B-2011	Organic Carbon	27		mg C/L	P417763	

Sample Location: Unnamed Slough @ Zoltan Drive

Collection Date/Time: 08/02/2022 11:10

Field ID: G3CE0054

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345523	DEP SOP: NU-094-1	Color (true)	100		PCU	P417582	
	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P417588	
	EPA 300.0 Rev. 2.1	Chloride	81		mg Cl/L	P417883	
		Sulfate	48		mg SO4/L	P417888	
	SM 2320 B-2011	Total Alkalinity	116		mg CaCO3/L	P417841	
	SM 2540 C-2011	TDS	352		mg/L	P417986	
	SM 2540 D-2011	TSS	9	I	mg/L	P418065	
2345525	SM 4500-F- C-2011	Fluoride	0.049	I	mg F/L	P417846	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.20		mg N/L	P417773	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P417712	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P417718	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P417740	
2345534	SM 5310 B-2011	Organic Carbon	16		mg C/L	P417763	
	EPA 200.7 Rev. 4.4	Calcium	59.8		mg/L	P417687	
		Iron	1.91E+03		ug/L	P417687	
		Magnesium	6.47		mg/L	P417687	
		Potassium	4.5		mg/L	P417687	
		Sodium	51.8		mg/L	P417687	
		Strontium	511		ug/L	P417687	
		Tin	3.0	U	ug/L	P417687	
		Titanium	5.4		ug/L	P417687	
		Vanadium	4.7	I	ug/L	P417687	
		Zinc	5.0	U	ug/L	P417687	
	EPA 200.8 Rev. 5.4	Aluminum	173		ug/L	P417687	
		Antimony	0.21		ug/L	P417687	
		Arsenic	3.35		ug/L	P417687	
		Barium	16.3		ug/L	P417687	
		Beryllium	0.028	I	ug/L	P417687	
		Boron	68.9		ug/L	P417687	
		Cadmium	0.020	U	ug/L	P417687	
		Chromium	0.86	I	ug/L	P417687	
		Cobalt	0.079	I	ug/L	P417687	
		Copper	0.57	I	ug/L	P417687	
		Lead	0.60		ug/L	P417687	
		Manganese	27.4		ug/L	P417687	
		Molybdenum	1.26		ug/L	P417687	
		Nickel	0.50	U	ug/L	P417687	
		Selenium	0.24	I	ug/L	P417687	
		Silver	0.010	U	ug/L	P417687	
		Thallium	0.10	U	ug/L	P417687	
	SM 2340 B-2011	Hardness	176		mg/L	P417687	

Field ID: G3CE0054

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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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 potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

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

Collection Date/Time: 08/02/2022 11:25

Field ID: G3CE0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345524	DEP SOP: NU-094-1	Color (true)	110		PCU	P417582	
	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P417588	
	EPA 300.0 Rev. 2.1	Chloride	83		mg Cl/L	P417883	
		Sulfate	50		mg SO4/L	P417888	
	SM 2320 B-2011	Total Alkalinity	137		mg CaCO3/L	P417842	
	SM 2540 C-2011	TDS	377	A	mg/L	P417987	
	SM 2540 D-2011	TSS	19	A	mg/L	P418066	
2345526	SM 4500-F- C-2011	Fluoride	0.054	I	mg F/L	P417847	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P417773	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P417712	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P417718	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P417740	
2345535	SM 5310 B-2011	Organic Carbon	17		mg C/L	P417763	
	EPA 200.7 Rev. 4.4	Calcium	74.2		mg/L	P417687	
		Iron	2.55E+03		ug/L	P417687	
		Magnesium	6.81		mg/L	P417687	
		Potassium	4.6		mg/L	P417687	
		Sodium	56.3		mg/L	P417687	
		Strontium	648		ug/L	P417687	
		Tin	3.0	U	ug/L	P417687	
		Titanium	2.0	I	ug/L	P417687	
		Vanadium	3.9	I	ug/L	P417687	
		Zinc	5.0	U	ug/L	P417687	
	EPA 200.8 Rev. 5.4	Aluminum	181		ug/L	P417687	
		Antimony	0.18	I	ug/L	P417687	
		Arsenic	3.70		ug/L	P417687	
		Barium	18.2		ug/L	P417687	
		Beryllium	0.033	I	ug/L	P417687	
		Boron	64.9		ug/L	P417687	
		Cadmium	0.020	U	ug/L	P417687	
		Chromium	0.85	I	ug/L	P417687	
		Cobalt	0.095		ug/L	P417687	
		Copper	0.66	I	ug/L	P417687	
		Lead	0.62		ug/L	P417687	
		Manganese	30.7		ug/L	P417687	
		Molybdenum	1.11		ug/L	P417687	
		Nickel	0.50	U	ug/L	P417687	
		Selenium	0.20	U	ug/L	P417687	
		Silver	0.010	U	ug/L	P417687	
		Thallium	0.10	U	ug/L	P417687	
	SM 2340 B-2011	Hardness	213		mg/L	P417687	

Field ID: G3CE0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P417582

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417588

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417687

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: P417687

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417883

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417888

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417773

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417712

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417740

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417785

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

Reference Method: SM 2320 B-2011
Batch ID: P417841

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

Reference Method: SM 2320 B-2011
Batch ID: P417842

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P417986

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P417987

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P418065

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P418066

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417846

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417847

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P417763

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: P417582

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417588

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	109		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	107		P	85 - 115
Sodium	97.6		P	85 - 115
Strontium	106		P	85 - 115
Tin	102		P	85 - 115
Titanium	106		P	85 - 115
Vanadium	104		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.6		P	80 - 120
Antimony	100		P	80 - 120
Arsenic	97.0		P	80 - 120
Barium	102		P	80 - 120
Beryllium	91.3		P	80 - 120
Boron	95.5		P	80 - 120
Cadmium	96.4		P	80 - 120
Chromium	96.3		P	80 - 120
Cobalt	94.7		P	80 - 120
Copper	92.2		P	80 - 120
Lead	93.3		P	80 - 120
Manganese	96.6		P	80 - 120
Molybdenum	94.3		P	80 - 120
Nickel	94.8		P	80 - 120
Selenium	95.0		P	80 - 120
Silver	97.0		P	80 - 120
Thallium	93.5		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417883

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417888

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417773

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417740

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417785

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

Reference Method: SM 2320 B-2011
Batch ID: P417841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P417842

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P417846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417847

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417763

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P417687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346296	Calcium	103		P	80 - 120
2346296	Iron	109	107	P/P	80 - 120
2346296	Magnesium	110	105	P/P	80 - 120
2346296	Potassium	101	96.9	P/P	80 - 120
2346296	Sodium	98.1		P	80 - 120
2346296	Strontium	101	99.6	P/P	80 - 120
2346296	Tin	103	102	P/P	80 - 120
2346296	Titanium	106	103	P/P	80 - 120
2346296	Vanadium	105	102	P/P	80 - 120
2346296	Zinc	103	100	P/P	80 - 120
2346340	Calcium	103		P	80 - 120
2346340	Iron	109		P	80 - 120
2346340	Magnesium	107		P	80 - 120
2346340	Sodium	101		P	80 - 120
2346340	Strontium	100		P	80 - 120
2346340	Tin	102		P	80 - 120
2346340	Titanium	105		P	80 - 120
2346340	Vanadium	104		P	80 - 120
2346340	Zinc	99.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P417687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346296	Aluminum	95.7	95.3	P/P	80 - 120
2346296	Antimony	101	102	P/P	80 - 120
2346296	Arsenic	98.6	98.7	P/P	80 - 120
2346296	Barium	102	101	P/P	80 - 120
2346296	Beryllium	94.4	93.1	P/P	80 - 120
2346296	Boron	96.5	95.6	P/P	80 - 120
2346296	Cadmium	97.4	96.5	P/P	80 - 120
2346296	Chromium	97.5	98.2	P/P	80 - 120
2346296	Cobalt	94.7	94.8	P/P	80 - 120
2346296	Copper	94.3	95.3	P/P	80 - 120
2346296	Lead	93.7	93.2	P/P	80 - 120
2346296	Manganese	97.6	97.9	P/P	80 - 120
2346296	Molybdenum	95.1	94.2	P/P	80 - 120
2346296	Nickel	93.7	94.8	P/P	80 - 120
2346296	Selenium	95.4	95.1	P/P	80 - 120
2346296	Silver	95.2	95.2	P/P	80 - 120
2346296	Thallium	96.1	95.9	P/P	80 - 120
2346340	Aluminum	99.2		P	80 - 120
2346340	Antimony	104		P	80 - 120
2346340	Arsenic	100		P	80 - 120
2346340	Barium	103		P	80 - 120
2346340	Beryllium	91.2		P	80 - 120
2346340	Cadmium	99.9		P	80 - 120
2346340	Chromium	100		P	80 - 120
2346340	Cobalt	97.7		P	80 - 120
2346340	Copper	94.2		P	80 - 120
2346340	Lead	95.5		P	80 - 120
2346340	Manganese	100		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2346340	Molybdenum	99.3		P	80 - 120
2346340	Nickel	95.5		P	80 - 120
2346340	Selenium	97.2		P	80 - 120
2346340	Silver	96.6		P	80 - 120
2346340	Thallium	97.5		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345590	Chloride	94.8		P	90 - 110
2345594	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345590	Sulfate	97.3		P	90 - 110
2345594	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345596	Ammonia-N	96.2	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345595	Ammonia-N	98.2	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345540	Kjeldahl Nitrogen	85.6	86.6	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345419	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345443	Total-P	105	101	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345575	Total-P	103	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345203	Fluoride	99.8	100	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345539	Fluoride	101	99.5	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345525	Organic Carbon	95.5	95.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P417582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345342	Color (true)	1.37	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345340	Turbidity	1.54	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346296	Calcium	3.17	Spike	P	0 - 20
2346296	Iron	1.74	Spike	P	0 - 20
2346296	Magnesium	2.86	Spike	P	0 - 20
2346296	Potassium	2.56	Spike	P	0 - 20
2346296	Sodium	3.36	Spike	P	0 - 20
2346296	Strontium	1.87	Spike	P	0 - 20
2346296	Tin	1.45	Spike	P	0 - 20
2346296	Titanium	2.43	Spike	P	0 - 20
2346296	Vanadium	2.71	Spike	P	0 - 20
2346296	Zinc	2.57	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2346296	Aluminum	0.438	Spike	P	0 - 20
2346296	Antimony	1.14	Spike	P	0 - 20
2346296	Arsenic	0.0924	Spike	P	0 - 20
2346296	Barium	0.332	Spike	P	0 - 20
2346296	Beryllium	1.29	Spike	P	0 - 20
2346296	Boron	0.652	Spike	P	0 - 20
2346296	Cadmium	0.950	Spike	P	0 - 20
2346296	Chromium	0.642	Spike	P	0 - 20
2346296	Cobalt	0.0197	Spike	P	0 - 20
2346296	Copper	1.11	Spike	P	0 - 20
2346296	Lead	0.480	Spike	P	0 - 20
2346296	Manganese	0.299	Spike	P	0 - 20
2346296	Molybdenum	0.928	Spike	P	0 - 20
2346296	Nickel	1.13	Spike	P	0 - 20
2346296	Selenium	0.282	Spike	P	0 - 20
2346296	Silver	0.0216	Spike	P	0 - 20
2346296	Thallium	0.275	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345590	Chloride	0.183	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345590	Sulfate	0.164	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345596	Ammonia-N	0.835	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345595	Ammonia-N	0.416	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345540	Kjeldahl Nitrogen	1.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345419	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345443	Total-P	3.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345575	Total-P	1.76	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P417841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345203	Total Alkalinity	1.40	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P417842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345539	Total Alkalinity	0.663	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011
Batch ID: P417986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345201	TDS	3.06	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P417987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345524	TDS	3.71	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P418066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345524	TSS	6.45	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345203	Fluoride	0.516	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P417847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345539	Fluoride	1.00	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P417763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345525	Organic Carbon	0.229	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: DEP SOP: NU-094-1

Run ID: A113881

Included Lab Sample IDs: 2345523, 2345524, 2345527

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 110
Color (true)	103	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113882

Included Lab Sample IDs: 2345523, 2345524, 2345527

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113931

Included Lab Sample IDs: 2345525, 2345526, 2345528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113942

Included Lab Sample IDs: 2345534, 2345535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	90 - 110
Iron	103	105	P/P	90 - 110
Magnesium	104	106	P/P	90 - 110
Potassium	102	104	P/P	90 - 110
Sodium	98.4	101	P/P	90 - 110
Strontium	98.2	101	P/P	90 - 110
Tin	98.1	98.8	P/P	90 - 110
Titanium	101	101	P/P	90 - 110
Vanadium	100	101	P/P	90 - 110
Zinc	96.4	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113958

Included Lab Sample IDs: 2345525, 2345526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.4	99.4	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113961

Included Lab Sample IDs: 2345525, 2345526, 2345528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	99.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113967

Included Lab Sample IDs: 2345525, 2345526, 2345528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	98.3	P/P	90 - 110
Ammonia-N	99.4	99.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A113988

Included Lab Sample IDs: 2345523, 2345524, 2345527

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	101	P/P	90 - 110
Total Alkalinity	99.7	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113988

Included Lab Sample IDs: 2345523, 2345524, 2345527

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	103	P/P	90 - 110
Fluoride	103	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A114002

Included Lab Sample IDs: 2345523, 2345524, 2345527

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	100	P/P	90 - 110
Sulfate	101	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114014

Included Lab Sample IDs: 2345528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114046

Included Lab Sample IDs: 2345525, 2345526, 2345528

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.4	91.6	P/P	90 - 110
Kjeldahl Nitrogen	96.5	94.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A114134

Included Lab Sample IDs: 2345534, 2345535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.6	100	P/P	90 - 110
Antimony	100	99.7	P/P	90 - 110
Arsenic	101	102	P/P	90 - 110
Barium	99.5	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A114134

Included Lab Sample IDs: 2345534, 2345535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	97.6	94.0	P/P	90 - 110
Boron	96.1	101	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Chromium	102	101	P/P	90 - 110
Cobalt	98.0	98.3	P/P	90 - 110
Copper	97.7	97.9	P/P	90 - 110
Lead	93.0	94.1	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Molybdenum	96.6	97.0	P/P	90 - 110
Nickel	98.7	97.3	P/P	90 - 110
Selenium	102	102	P/P	90 - 110
Silver	97.0	97.7	P/P	90 - 110
Thallium	97.9	98.6	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)	101				1.37	
EPA 180.1 Rev. 2.0	Turbidity	96.4				1.54	
EPA 200.7 Rev. 4.4	Calcium	104	103	103			3.17
	Iron	109	109	107	109		1.74
	Magnesium	112	110	105	107		2.86
	Potassium	107	101	96.9			2.56
	Sodium	97.6	98.1	101			3.36
	Strontium	106	101	99.6	100		1.87
	Tin	102	103	102	102		1.45
	Titanium	106	106	103	105		2.43
	Vanadium	104	105	102	104		2.71
	Zinc	101	103	100	99.9		2.57
EPA 200.8 Rev. 5.4	Aluminum	94.6	95.7	95.3	99.2		0.438
	Antimony	100	101	102	104		1.14
	Arsenic	97.0	98.6	98.7	100		0.0924
	Barium	102	102	101	103		0.332
	Beryllium	91.3	94.4	93.1	91.2		1.29
	Boron	95.5	96.5	95.6			0.652
	Cadmium	96.4	97.4	96.5	99.9		0.950
	Chromium	96.3	97.5	98.2	100		0.642
	Cobalt	94.7	94.7	94.8	97.7		0.0197
	Copper	92.2	94.3	95.3	94.2		1.11
	Lead	93.3	93.7	93.2	95.5		0.480
	Manganese	96.6	97.6	97.9	100		0.299
	Molybdenum	94.3	95.1	94.2	99.3		0.928
	Nickel	94.8	93.7	94.8	95.5		1.13
	Selenium	95.0	95.4	95.1	97.2		0.282
	Silver	97.0	95.2	95.2	96.6		0.0216
	Thallium	93.5	97.5	96.1	95.9		0.275
EPA 300.0 Rev. 2.1	Chloride	102	94.8	97.8		0.183	
	Sulfate	99.6	97.3	99.1		0.164	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	96.2	95.4			0.835
	Ammonia-N	95.4	98.2	97.6			0.416
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9	85.6	86.6			1.09
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	99.5	99.5			0.0
EPA 365.1 Rev. 2.0	Total-P	104	105	101			3.66
	Total-P	103	103	104			1.76
SM 2320 B-2011	Total Alkalinity	100				1.40	
	Total Alkalinity	100				0.663	
SM 2540 C-2011	TDS					3.06	
	TDS					3.71	
SM 2540 D-2011	TSS					6.45	
SM 4500-F- C-2011	Fluoride	102	99.8	100			0.516
	Fluoride	102	101	99.5			1.00
SM 5310 B-2011	Organic Carbon	97.4	95.5	95.1			0.229

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2345523, 2345524, 2345527
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2345523, 2345524, 2345527
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2345534, 2345535

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	2345534, 2345535
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2345523, 2345524, 2345527
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2345523, 2345524, 2345527
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2345525, 2345526, 2345528
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2345525, 2345526, 2345528
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2345525, 2345526, 2345528
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2345525, 2345526, 2345528
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2345523, 2345524, 2345527
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2345534, 2345535
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2345523, 2345524, 2345527
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2345523, 2345524, 2345527
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2345523, 2345524, 2345527
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2345525, 2345526, 2345528

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	08/03/2022			08/03/2022 15:24	Anna M. Plaviak	2345523
	08/03/2022			08/03/2022 15:25	Anna M. Plaviak	2345524
	08/03/2022			08/03/2022 15:48	Anna M. Plaviak	2345527
EPA 180.1 Rev. 2.0	08/03/2022			08/03/2022 14:06	Khloe J Berg	2345523
	08/03/2022			08/03/2022 14:08	Khloe J Berg	2345524
	08/03/2022			08/03/2022 14:09	Khloe J Berg	2345527
EPA 200.7 Rev. 4.4	08/03/2022	08/05/2022 09:45	Mackenzie Hunt	08/05/2022 19:50	McKinley C Carter	2345534
	08/03/2022	08/05/2022 09:45	Mackenzie Hunt	08/05/2022 19:57	McKinley C Carter	2345535
EPA 200.8 Rev. 5.4	08/03/2022	08/05/2022 09:45	Mackenzie Hunt	08/16/2022 15:41	Emily M Philpot	2345534
	08/03/2022	08/05/2022 09:45	Mackenzie Hunt	08/16/2022 15:50	Emily M Philpot	2345535
EPA 300.0 Rev. 2.1	08/03/2022			08/09/2022 07:21	Anna M. Plaviak	2345523
	08/03/2022			08/09/2022 07:33	Anna M. Plaviak	2345524
	08/03/2022			08/09/2022 07:45	Anna M. Plaviak	2345527
EPA 350.1 Rev. 2.0	08/03/2022			08/08/2022 17:05	Ping Hua	2345528
	08/03/2022			08/08/2022 17:26	Ping Hua	2345525
	08/03/2022			08/08/2022 17:27	Ping Hua	2345526
EPA 351.2 Rev. 2.0	08/03/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 13:23	Alexandra J Mattheus	2345525
	08/03/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 13:27	Alexandra J Mattheus	2345526
	08/03/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 13:29	Alexandra J Mattheus	2345528
EPA 353.2 Rev. 2.0	08/03/2022			08/05/2022 09:53	Beverly Y. Sanders	2345525
	08/03/2022			08/05/2022 09:55	Beverly Y. Sanders	2345526
	08/03/2022			08/05/2022 09:56	Beverly Y. Sanders	2345528
EPA 365.1 Rev. 2.0	08/03/2022	08/05/2022 18:15	Adam P Silver	08/08/2022 11:45	James L Waggeberby	2345525
	08/03/2022	08/05/2022 18:15	Adam P Silver	08/08/2022 11:46	James L Waggeberby	2345526
	08/03/2022	08/09/2022 09:37	Simonne.V. Calhoun	08/10/2022 15:34	James L Waggeberby	2345528
SM 2320 B-2011	08/03/2022			08/05/2022 15:56	Adam P Silver	2345523
	08/03/2022			08/05/2022 17:55	Adam P Silver	2345524
	08/03/2022			08/05/2022 18:09	Adam P Silver	2345527
SM 2340 B-2011	08/03/2022			08/05/2022 19:50	McKinley C Carter	2345534
	08/03/2022			08/05/2022 19:57	McKinley C Carter	2345535
SM 2540 C-2011	08/03/2022			08/05/2022 16:02	Yijie Li	2345523, 2345524, 2345527
SM 2540 D-2011	08/03/2022			08/05/2022 16:02	Yijie Li	2345523, 2345524, 2345527
SM 4500-F- C-2011	08/03/2022			08/05/2022 15:56	Adam P Silver	2345523
	08/03/2022			08/05/2022 17:55	Adam P Silver	2345524
	08/03/2022			08/05/2022 18:09	Adam P Silver	2345527
SM 5310 B-2011	08/03/2022			08/05/2022 22:50	Khloe J Berg	2345525
	08/03/2022			08/06/2022 00:09	Khloe J Berg	2345526
	08/03/2022			08/06/2022 00:25	Khloe J Berg	2345528