

Chemical Analysis Report

CEN-DIST-2023-11-14-02

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

Event Description: **Run 10**
Request ID: **RQ-2023-11-13-13**
Customer: **CEN-DIST**
Project ID: **SMP**

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

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

Certified by: Chris Bowen, Environmental Administrator

Date Certified: 30-NOV-2023 09:53



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: Lake Ingram East

Collection Date/Time: 11/13/2023 09:44

Field ID: G4CE0155

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2450855	DEP SOP: NU-094-1	Color (true)	52	A	PCU	P437749	
	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P437754	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P437998	
		Sulfate	3.1		mg SO4/L	P438002	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P438013	
	SM 2540 C-2015	TDS	71		mg/L	P438247	
	SM 2540 D-2015	TSS	2	I	mg/L	P438201	
	SM 4500-F- C-2011	Fluoride	0.049	I	mg F/L	P438017	
2450856	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P438133	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P437758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P438101	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P438044	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P437965	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Reams at Center

Collection Date/Time: 11/13/2023 10:29

Field ID: G4CE0242

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2450862	EPA 200.7 Rev. 4.4	Calcium	7.26		mg/L	P437800	
		Iron	93	I	ug/L	P437800	
		Magnesium	3.42		mg/L	P437800	
		Potassium	5.5		mg/L	P437800	
		Sodium	23.0		mg/L	P437800	
		Strontium	23.6		ug/L	P437800	
		Tin	3.0	U	ug/L	P437800	
		Titanium	0.75	U	ug/L	P437800	
		Vanadium	2.0	U	ug/L	P437800	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P437800	
		Aluminum	45		ug/L	P437800	
		Antimony	0.15	I	ug/L	P437800	
		Arsenic	0.29		ug/L	P437800	
		Barium	9.76		ug/L	P437800	
		Beryllium	0.010	U	ug/L	P437800	
		Boron	47.3		ug/L	P437800	
		Cadmium	0.110		ug/L	P437800	
		Chromium	0.40	U	ug/L	P437800	
		Cobalt	0.025	I	ug/L	P437800	
		Copper	0.99		ug/L	P437800	
		Lead	0.20	U	ug/L	P437800	
		Manganese	4.35		ug/L	P437800	
		Molybdenum	0.15	U	ug/L	P437800	
		Nickel	0.50	U	ug/L	P437800	
		Selenium	0.20	U	ug/L	P437800	
		Silver	0.010	U	ug/L	P437800	
		Thallium	0.10	U	ug/L	P437800	
	SM 2340 B-2011	Hardness	32.2		mg/L	P437800	

Sample Location: Lake Fairhope at Center

Collection Date/Time: 11/13/2023 11:47

Field ID: G2CE0016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2450853	DEP SOP: NU-094-1	Color (true)	30	A	PCU	P437771	
	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P437754	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P437998	
		Sulfate	0.92		mg SO4/L	P438002	
	SM 2320 B-2011	Total Alkalinity	66		mg CaCO3/L	P438013	
	SM 2540 C-2015	TDS	117		mg/L	P438247	
	SM 2540 D-2015	TSS	25		mg/L	P438201	
2450854	SM 4500-F- C-2011	Fluoride	0.046	I	mg F/L	P438017	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P438133	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P437758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P437978	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P438044	
2450861	SM 5310 B-2011	Organic Carbon	11		mg C/L	P437965	
	EPA 200.7 Rev. 4.4	Calcium	28.1		mg/L	P437800	
		Iron	250		ug/L	P437800	
		Magnesium	1.85		mg/L	P437800	
		Potassium	1.6		mg/L	P437800	
		Sodium	10.3		mg/L	P437800	
		Strontium	65.6		ug/L	P437800	
		Tin	3.0	U	ug/L	P437800	
		Titanium	3.0		ug/L	P437800	
		Vanadium	2.0	U	ug/L	P437800	
		Zinc	11	I	ug/L	P437800	
	EPA 200.8 Rev. 5.4	Aluminum	244		ug/L	P437800	
		Antimony	1.39		ug/L	P437800	
		Arsenic	1.41		ug/L	P437800	
		Barium	12.7		ug/L	P437800	
		Beryllium	0.010	U	ug/L	P437800	
		Boron	23.1		ug/L	P437800	
		Cadmium	0.020	U	ug/L	P437800	
		Chromium	0.70	I	ug/L	P437800	
		Cobalt	0.072	I	ug/L	P437800	
		Copper	2.55		ug/L	P437800	
		Lead	4.02		ug/L	P437800	
		Manganese	26.5		ug/L	P437800	
		Molybdenum	0.28	I	ug/L	P437800	
		Nickel	0.50	U	ug/L	P437800	
		Selenium	0.20	U	ug/L	P437800	
		Silver	0.010	U	ug/L	P437800	
		Thallium	0.10	U	ug/L	P437800	
	SM 2340 B-2011	Hardness	77.9		mg/L	P437800	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 11/17/2023.

Sample Location: FB

Collection Date/Time: 11/13/2023 11:52

Field ID: FB_11132023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2450857	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P437749	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P437754	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P437998	
		Sulfate	0.20	U	mg SO4/L	P438002	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P438013	
	SM 2540 C-2015	TDS	15	U	mg/L	P438247	
	SM 2540 D-2015	TSS	2	U	mg/L	P438201	
	SM 4500-F- C-2011	Fluoride	0.025	U	mg F/L	P438017	
2450858	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P438133	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P437758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P438100	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P438044	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P437965	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P437749

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P437771

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437754

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437800

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: P437800

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: P437998

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438002

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438133

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437758

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437978

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438100

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438101

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438044

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

Reference Method: SM 2320 B-2011
Batch ID: P438013

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P438247

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P438201

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P438017

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P437965

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: P437749

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

Reference Method: DEP SOP: NU-094-1
Batch ID: P437771

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437754

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	104		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	101		P	85 - 115
Sodium	100		P	85 - 115
Strontium	100		P	85 - 115
Tin	96.5		P	85 - 115
Titanium	97.1		P	85 - 115
Vanadium	97.5		P	85 - 115
Zinc	96.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	105		P	85 - 115
Arsenic	98.8		P	85 - 115
Barium	102		P	85 - 115
Beryllium	100		P	85 - 115
Boron	97.9		P	85 - 115
Cadmium	98.6		P	85 - 115
Chromium	98.0		P	85 - 115
Cobalt	94.5		P	85 - 115
Copper	98.0		P	85 - 115
Lead	95.9		P	85 - 115
Manganese	101		P	85 - 115
Molybdenum	93.4		P	85 - 115
Nickel	98.2		P	85 - 115
Selenium	100		P	85 - 115
Silver	108		P	85 - 115
Thallium	98.2		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437998

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438002

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438133

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437758

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437978

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438100

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438101

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: P438044

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

Reference Method: SM 2320 B-2011
Batch ID: P438013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.6		P	92 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P438247

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	93.2		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P438201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	109		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P438017

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

Reference Method: SM 5310 B-2011
Batch ID: P437965

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P437800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450840	Calcium	100		P	80 - 120
2450840	Iron	101	101	P/P	80 - 120
2450840	Magnesium	103	102	P/P	80 - 120
2450840	Potassium	96.8	97.7	P/P	80 - 120
2450840	Sodium	99.6		P	80 - 120
2450840	Strontium	97.7	98.2	P/P	80 - 120
2450840	Tin	96.3	96.3	P/P	80 - 120
2450840	Titanium	99.5	99.8	P/P	80 - 120
2450840	Vanadium	101	101	P/P	80 - 120
2450840	Zinc	98.5	98.3	P/P	80 - 120
2451014	Calcium	106		P	80 - 120
2451014	Iron	105		P	80 - 120
2451014	Magnesium	106		P	80 - 120
2451014	Potassium	103		P	80 - 120
2451014	Sodium	103		P	80 - 120
2451014	Strontium	102		P	80 - 120
2451014	Tin	99.5		P	80 - 120
2451014	Titanium	102		P	80 - 120
2451014	Vanadium	103		P	80 - 120
2451014	Zinc	99.5		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P437800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450840	Aluminum	98.2	97.7	P/P	80 - 120
2450840	Antimony	106	106	P/P	80 - 120
2450840	Arsenic	99.8	100	P/P	80 - 120
2450840	Barium	103	103	P/P	80 - 120
2450840	Beryllium	104	102	P/P	80 - 120
2450840	Boron	94.6	94.5	P/P	80 - 120
2450840	Cadmium	99.2	99.7	P/P	80 - 120
2450840	Chromium	96.0	96.4	P/P	80 - 120
2450840	Cobalt	96.4	96.7	P/P	80 - 120
2450840	Copper	100	99.7	P/P	80 - 120
2450840	Lead	94.5	94.7	P/P	80 - 120
2450840	Manganese	108	99.4	P/P	80 - 120
2450840	Molybdenum	96.9	98.0	P/P	80 - 120
2450840	Nickel	96.4	96.9	P/P	80 - 120
2450840	Selenium	100	99.8	P/P	80 - 120
2450840	Silver	106	108	P/P	80 - 120
2450840	Thallium	96.9	98.0	P/P	80 - 120
2451014	Aluminum	95.7		P	80 - 120
2451014	Antimony	107		P	80 - 120
2451014	Arsenic	98.5		P	80 - 120
2451014	Barium	101		P	80 - 120
2451014	Beryllium	98.4		P	80 - 120
2451014	Boron	102		P	80 - 120
2451014	Cadmium	96.7		P	80 - 120
2451014	Chromium	95.2		P	80 - 120
2451014	Cobalt	92.1		P	80 - 120
2451014	Copper	96.5		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2451014	Lead	94.3		P	80 - 120
2451014	Manganese	99.5		P	80 - 120
2451014	Molybdenum	97.4		P	80 - 120
2451014	Nickel	94.8		P	80 - 120
2451014	Selenium	98.9		P	80 - 120
2451014	Silver	106		P	80 - 120
2451014	Thallium	96.5		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450823	Chloride	108		P	90 - 110
2450883	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P438002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450823	Sulfate	106		P	90 - 110
2450883	Sulfate	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450856	Ammonia-N	95.6	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450889	Kjeldahl Nitrogen	109	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450792	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2451144	NO2NO3-N	95.8	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2449691	NO2NO3-N	97.7	98.2	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450826	Total-P	103	104	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P438017

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450964	Fluoride	101	101	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P437965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2450739	Organic Carbon	96.0	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P437749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450855	Color (true)	1.92	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P437771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450853	Color (true)	11.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450735	Turbidity	4.57	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450840	Calcium	0.206	Spike	P	0 - 20
2450840	Iron	0.188	Spike	P	0 - 20
2450840	Magnesium	0.448	Spike	P	0 - 20
2450840	Potassium	0.574	Spike	P	0 - 20
2450840	Sodium	0.268	Spike	P	0 - 20
2450840	Strontium	0.409	Spike	P	0 - 20
2450840	Tin	0.0198	Spike	P	0 - 20
2450840	Titanium	0.328	Spike	P	0 - 20
2450840	Vanadium	0.126	Spike	P	0 - 20
2450840	Zinc	0.168	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450840	Aluminum	0.457	Spike	P	0 - 20
2450840	Antimony	0.347	Spike	P	0 - 20
2450840	Arsenic	0.573	Spike	P	0 - 20
2450840	Barium	0.412	Spike	P	0 - 20
2450840	Beryllium	2.18	Spike	P	0 - 20
2450840	Boron	0.0274	Spike	P	0 - 20
2450840	Cadmium	0.534	Spike	P	0 - 20
2450840	Chromium	0.492	Spike	P	0 - 20
2450840	Cobalt	0.274	Spike	P	0 - 20
2450840	Copper	0.287	Spike	P	0 - 20
2450840	Lead	0.224	Spike	P	0 - 20
2450840	Manganese	1.91	Spike	P	0 - 20
2450840	Molybdenum	1.04	Spike	P	0 - 20
2450840	Nickel	0.541	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450840	Selenium	0.658	Spike	P	0 - 20
2450840	Silver	1.76	Spike	P	0 - 20
2450840	Thallium	1.18	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450823	Chloride	0.443	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P438133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450856	Ammonia-N	2.24	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450889	Kjeldahl Nitrogen	9.89	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450792	NO2NO3-N	0.671	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2451144	NO2NO3-N	0.980	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P438101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2449691	NO2NO3-N	0.434	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438044

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: P438044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450826	Total-P	0.581	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P438013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450964	Total Alkalinity	1.18	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P438247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450787	TDS	3.75	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P438017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450964	Fluoride	0.0	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P437965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2450739	Organic Carbon	0.331	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A122707

Included Lab Sample IDs: 2450855, 2450857

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A122708

Included Lab Sample IDs: 2450853, 2450855, 2450857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A122715

Included Lab Sample IDs: 2450853

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A122736

Included Lab Sample IDs: 2450853, 2450855, 2450857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	104	P/P	90 - 110
Chloride	104	105	P/P	90 - 110
Sulfate	101	104	P/P	90 - 110
Sulfate	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122765

Included Lab Sample IDs: 2450854, 2450856, 2450858

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122783

Included Lab Sample IDs: 2450861, 2450862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.8	98.2	P/P	90 - 110
Arsenic	99.1	98.8	P/P	90 - 110
Barium	101	101	P/P	90 - 110
Beryllium	108	103	P/P	90 - 110
Boron	93.7	97.3	P/P	90 - 110
Cadmium	98.2	98.6	P/P	90 - 110
Chromium	97.6	98.3	P/P	90 - 110
Cobalt	94.3	93.4	P/P	90 - 110
Copper	98.1	97.3	P/P	90 - 110
Lead	96.4	96.9	P/P	90 - 110
Manganese	101	99.4	P/P	90 - 110
Molybdenum	94.4	95.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122783

Included Lab Sample IDs: 2450861, 2450862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	97.6	98.2	P/P	90 - 110
Selenium	99.9	99.7	P/P	90 - 110
Thallium	95.8	94.7	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A122792

Included Lab Sample IDs: 2450854, 2450856, 2450858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122800

Included Lab Sample IDs: 2450854

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122813

Included Lab Sample IDs: 2450861, 2450862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	97.7	103	P/P	90 - 110
Silver	94.5	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A122815

Included Lab Sample IDs: 2450853, 2450855, 2450857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.7	97.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A122815

Included Lab Sample IDs: 2450853, 2450855, 2450857

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A122817

Included Lab Sample IDs: 2450861, 2450862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.1	95.5	P/P	90 - 110
Iron	98.7	95.8	P/P	90 - 110
Magnesium	98.0	95.4	P/P	90 - 110
Potassium	96.8	93.4	P/P	90 - 110
Sodium	97.4	94.1	P/P	90 - 110
Strontium	98.1	96.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A122817

Included Lab Sample IDs: 2450861, 2450862

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tin	96.5	96.9	P/P	90 - 110
Titanium	97.1	96.1	P/P	90 - 110
Vanadium	97.6	96.4	P/P	90 - 110
Zinc	99.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122846

Included Lab Sample IDs: 2450854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122849

Included Lab Sample IDs: 2450856, 2450858

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: A122865

Included Lab Sample IDs: 2450856, 2450858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122869

Included Lab Sample IDs: 2450854, 2450856, 2450858

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.7	96.6	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	
						LCS	SMP MS
DEP SOP: NU-094-1	Color (true)	102					1.92
	Color (true)	99.2					11.0
EPA 180.1 Rev. 2.0	Turbidity	104					4.57
EPA 200.7 Rev. 4.4	Calcium	100	100	106			0.206
	Iron	104	101	101	105		0.188
	Magnesium	105	103	102	106		0.448
	Potassium	101	96.8	97.7	103		0.574
	Sodium	100	99.6	103			0.268
	Strontium	100	97.7	98.2	102		0.409
	Tin	96.5	96.3	96.3	99.5		0.0198
	Titanium	97.1	99.5	99.8	102		0.328
	Vanadium	97.5	101	101	103		0.126
	Zinc	96.1	98.5	98.3	99.5		0.168
EPA 200.8 Rev. 5.4	Aluminum	100	98.2	97.7	95.7		0.457
	Antimony	105	106	106	107		0.347
	Arsenic	98.8	99.8	100	98.5		0.573
	Barium	102	103	103	101		0.412
	Beryllium	100	104	102	98.4		2.18
	Boron	97.9	94.6	94.5	102		0.0274
	Cadmium	98.6	99.2	99.7	96.7		0.534
	Chromium	98.0	96.0	96.4	95.2		0.492
	Cobalt	94.5	96.4	96.7	92.1		0.274
	Copper	98.0	100	99.7	96.5		0.287
	Lead	95.9	94.5	94.7	94.3		0.224
	Manganese	101	108	99.4	99.5		1.91
	Molybdenum	93.4	96.9	98.0	97.4		1.04
	Nickel	98.2	96.4	96.9	94.8		0.541
	Selenium	100	100	99.8	98.9		0.658
	Silver	108	106	108	106		1.76
	Thallium	98.2	96.9	98.0	96.5		1.18
EPA 300.0 Rev. 2.1	Chloride	104	108	105			0.443
	Sulfate	104	106	105			
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	95.6	98.4			2.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	109	96.8			9.89
EPA 353.2 Rev. 2.0	NO2NO3-N	103	100	101			0.671
	NO2NO3-N	100	95.8	96.8			0.980
	NO2NO3-N	100	97.7	98.2			0.434
EPA 365.1 Rev. 2.0	Total-P	101	103	104			0.581
SM 2320 B-2011	Total Alkalinity	97.6					1.18
SM 2540 C-2015	TDS	93.2					3.75
SM 2540 D-2015	TSS	109					
SM 4500-F- C-2011	Fluoride	101	101	101			0.0
SM 5310 B-2011	Organic Carbon	95.7	96.0	96.4			0.331

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2450853, 2450855, 2450857
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2450853, 2450855, 2450857
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2450861, 2450862
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2450861, 2450862

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2450853, 2450855, 2450857
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2450853, 2450855, 2450857
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2450854, 2450856, 2450858
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2450854, 2450856, 2450858
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2450854, 2450856, 2450858
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2450854, 2450856, 2450858
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2450853, 2450855, 2450857
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2450861, 2450862
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2450853, 2450855, 2450857
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2450853, 2450855, 2450857
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2450853, 2450855, 2450857
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2450854, 2450856, 2450858

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	11/14/2023			11/14/2023 14:58	Chandler E Cox	2450855
	11/14/2023			11/14/2023 14:59	Chandler E Cox	2450857
	11/14/2023			11/15/2023 09:01	Chandler E Cox	2450853
EPA 180.1 Rev. 2.0	11/14/2023			11/14/2023 13:28	Samantha L Bates	2450853
	11/14/2023			11/14/2023 13:34	Samantha L Bates	2450855
	11/14/2023			11/14/2023 13:46	Samantha L Bates	2450857
EPA 200.7 Rev. 4.4	11/14/2023	11/15/2023 12:50	George D Taylor	11/17/2023 15:22	Samatha Luckman	2450861
	11/14/2023	11/15/2023 12:50	George D Taylor	11/17/2023 15:29	Samatha Luckman	2450862
EPA 200.8 Rev. 5.4	11/14/2023	11/15/2023 12:50	George D Taylor	11/16/2023 19:06	Conrad Hartmann	2450861
	11/14/2023	11/15/2023 12:50	George D Taylor	11/16/2023 19:14	Conrad Hartmann	2450862
	11/14/2023	11/15/2023 12:50	George D Taylor	11/17/2023 15:53	Emily M Philpot	2450861
	11/14/2023	11/15/2023 12:50	George D Taylor	11/17/2023 15:59	Emily M Philpot	2450862
EPA 300.0 Rev. 2.1	11/14/2023			11/18/2023 01:23	James L Waggeberby	2450853
	11/14/2023			11/18/2023 01:38	James L Waggeberby	2450855
	11/14/2023			11/18/2023 02:23	James L Waggeberby	2450857
EPA 350.1 Rev. 2.0	11/14/2023			11/21/2023 13:29	Khloe J Berg	2450856
	11/14/2023			11/21/2023 13:33	Khloe J Berg	2450854
	11/14/2023			11/21/2023 13:34	Khloe J Berg	2450858
EPA 351.2 Rev. 2.0	11/14/2023	11/15/2023 11:48	Simonne.V. Calhoun	11/16/2023 10:46	Samantha L Bates	2450854
	11/14/2023	11/15/2023 11:48	Simonne.V. Calhoun	11/16/2023 10:48	Samantha L Bates	2450856
	11/14/2023	11/15/2023 11:48	Simonne.V. Calhoun	11/16/2023 10:49	Samantha L Bates	2450858
EPA 353.2 Rev. 2.0	11/14/2023			11/17/2023 13:50	Fadila Guebre	2450854
	11/14/2023			11/20/2023 14:05	Anna M. Plaviak	2450858
	11/14/2023			11/20/2023 14:32	Anna M. Plaviak	2450856
EPA 365.1 Rev. 2.0	11/14/2023	11/20/2023 12:58	Adam P Silver	11/20/2023 18:38	Simonne.V. Calhoun	2450854
	11/14/2023	11/20/2023 12:58	Adam P Silver	11/21/2023 12:59	Simonne.V. Calhoun	2450858
	11/14/2023	11/20/2023 12:58	Adam P Silver	11/21/2023 13:08	Simonne.V. Calhoun	2450856
SM 2320 B-2011	11/14/2023			11/18/2023 06:20	Adam P Silver	2450853
	11/14/2023			11/18/2023 06:33	Adam P Silver	2450855
	11/14/2023			11/18/2023 06:42	Adam P Silver	2450857
SM 2340 B-2011	11/14/2023			11/17/2023 15:22	Samatha Luckman	2450861
	11/14/2023			11/17/2023 15:29	Samatha Luckman	2450862
SM 2540 C-2015	11/14/2023			11/16/2023 15:42	Yijie Li	2450853, 2450855, 2450857
SM 2540 D-2015	11/14/2023			11/16/2023 15:42	Yijie Li	2450853, 2450855, 2450857
SM 4500-F- C-2011	11/14/2023			11/18/2023 06:20	Adam P Silver	2450853
	11/14/2023			11/18/2023 06:33	Adam P Silver	2450855
	11/14/2023			11/18/2023 06:42	Adam P Silver	2450857
SM 5310 B-2011	11/14/2023			11/17/2023 06:14	Khloe J Berg	2450854
	11/14/2023			11/17/2023 06:27	Khloe J Berg	2450856
	11/14/2023			11/17/2023 06:41	Khloe J Berg	2450858