

Chemical Analysis Report

SO-DIST-2021-02-26-01

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

Event Description: **2021 SMP : Charlotte Harbor**

Request ID: **RQ-2021-02-22-41**

Customer: **SO-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Chris Hormuth

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Certified by: Colin Wright, Program Administrator

Date Certified: 22-MAR-2021 11:16



NON-CONFORMANCE REPORT INCLUDED

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: Trailer Park Canal

Collection Date/Time: 02/24/2021 10:15

Field ID: G3SD0072

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2227738	EPA 300.0 Rev. 2.1	Bromide	36		mg Br/L	P394556	
	SM 2320 B-2011	Total Alkalinity	101		mg CaCO3/L	P394521	
	SM 2540 D-2011	TSS	3	I	mg/L	P394828	
	SM 4500 F-C-2011	Fluoride	0.77		mg F/L	P394523	
2227739	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P394441	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P394559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P394336	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P394369	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P394784	
2227751	EPA 200.7 Rev. 4.4	Calcium	259		mg/L	P394495	
		Chromium	5.7	I	ug/L	P394495	
		Iron	190	I	ug/L	P394495	
		Magnesium	653		mg/L	P394495	
		Manganese	6.3	I	ug/L	P394495	
		Zinc	15	U	ug/L	P394495	
	EPA 200.8 Rev. 5.4	Aluminum	192		ug/L	P394495	
		Antimony	0.20	U	ug/L	P394495	
		Arsenic	1.45		ug/L	P394495	
		Beryllium	0.040	U	ug/L	P394495	
		Cadmium	0.080	U	ug/L	P394495	
		Copper	1.6	U	ug/L	P394495	
		Lead	0.80	U	ug/L	P394495	
		Nickel	2.0	U	ug/L	P394495	
		Selenium	0.80	U	ug/L	P394495	
		Silver	0.040	U	ug/L	P394495	
		Thallium	0.40	U	ug/L	P394495	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium and magnesium are unavailable because of high analyte concentration in the QC sample.

Sample Location: FB_022421

Collection Date/Time: 02/24/2021 10:30

Field ID: FB_022421

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2227742	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P394556	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P394513	
	SM 2540 D-2011	TSS	2	U	mg/L	P394827	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P394516	
2227743	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P394442	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P394539	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P394457	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P394370	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P394783	
2227752	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P394326	
		Iron	30	U	ug/L	P394326	
		Magnesium	0.040	U	mg/L	P394326	
		Manganese	1.0	U	ug/L	P394326	
		Zinc	8.4	I	ug/L	P394326	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P394326	
		Antimony	0.050	U	ug/L	P394326	
		Arsenic	0.050	U	ug/L	P394326	
		Beryllium	0.010	U	ug/L	P394326	
		Cadmium	0.020	U	ug/L	P394326	
		Chromium	0.40	U	ug/L	P394326	
		Copper	0.40	U	ug/L	P394326	
		Lead	0.20	U	ug/L	P394326	
		Nickel	0.50	U	ug/L	P394326	
		Selenium	0.20	U	ug/L	P394326	
		Silver	0.010	U	ug/L	P394326	
		Thallium	0.10	U	ug/L	P394326	

Ref. Method and Comment:

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

SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 200.7 Rev. 4.4: The zinc result was confirmed in the undigested sample on 03/04/2021.

Sample Location: Coral Creek (East) Upstream of Golf Course

Collection Date/Time: 02/24/2021 11:55

Field ID: G2SD0039

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2227740	EPA 300.0 Rev. 2.1	Bromide	61		mg Br/L	P394556	
	SM 2320 B-2011	Total Alkalinity	121		mg CaCO3/L	P394521	
	SM 2540 D-2011	TSS	3	I	mg/L	P394828	
	SM 4500 F-C-2011	Fluoride	1.0		mg F/L	P394523	
2227741	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P394441	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P394559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P394336	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P394369	
	SM 5310 B-2011	Organic Carbon	7.3		mg C/L	P394784	

Non-Conformance Report

NCR ID: 8689

Event(s)

SO-DIST-2021-02-26-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one day late by FedEx, samples received within the acceptable temperature.

Resolution: Samples logged in according to SMP Protocol.

Samples will be qualified as appropriate.

Customer contacted, email correspondence attached to sample submittal forms.

Biology and Chemistry supervisors were notified by email.

Authorized by/Date: Joshua Ayres 3/1/2021

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P394326

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P394495

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Chromium	1.0	U	ug/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P394326

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
Copper	0.40	U	ug/L
Lead	0.20	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 200.8 Rev. 5.4

Batch ID: P394495

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
Copper	0.40	U	ug/L
Lead	0.20	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: P394556

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394441

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394442

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394539

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394559

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394336

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394457

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394369

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394370

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P394513

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

Reference Method: SM 2320 B-2011
Batch ID: P394521

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

Reference Method: SM 2540 D-2011
Batch ID: P394827

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P394828

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394516

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P394523

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P394783

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

Reference Method: SM 5310 B-2011
Batch ID: P394784

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P394326

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	111		P	85 - 115
Iron	106		P	85 - 115
Magnesium	105		P	85 - 115
Manganese	101		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P394495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Chromium	94.3		P	85 - 115
Iron	101		P	85 - 115
Magnesium	103		P	85 - 115
Manganese	97.8		P	85 - 115
Zinc	99.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P394326

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	95.6		P	85 - 115
Antimony	98.0		P	85 - 115
Arsenic	98.2		P	85 - 115
Beryllium	89.7		P	85 - 115
Cadmium	98.0		P	85 - 115
Chromium	95.3		P	85 - 115
Copper	96.2		P	85 - 115
Lead	104		P	85 - 115
Nickel	96.2		P	85 - 115
Selenium	97.6		P	85 - 115
Silver	104		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P394495

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	87.5		P	80 - 120
Antimony	92.4		P	80 - 120
Arsenic	86.2		P	80 - 120
Beryllium	87.3		P	80 - 120
Cadmium	89.0		P	80 - 120
Copper	84.5		P	80 - 120
Lead	86.2		P	80 - 120
Nickel	83.6		P	80 - 120
Selenium	87.3		P	80 - 120
Silver	106		P	85 - 115
Thallium	93.7		P	80 - 120

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394556

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394441

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394442

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394539

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394559

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394369

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394370

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P394513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	93.6		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P394521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	93.3		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P394516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P394523

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P394783

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

Reference Method: SM 5310 B-2011
Batch ID: P394784

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P394326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227481	Calcium	105		P	80 - 120
2227481	Iron	104		P	80 - 120
2227481	Magnesium	102		P	80 - 120
2227481	Manganese	102		P	80 - 120
2227481	Zinc	106		P	80 - 120
2228011	Calcium	105		P	80 - 120
2228011	Iron	106	103	P/P	80 - 120
2228011	Magnesium	102	99.0	P/P	80 - 120
2228011	Manganese	102	99.3	P/P	80 - 120
2228011	Zinc	110	107	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P394495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227751	Chromium	93.5	94.1	P/P	70 - 130
2227751	Iron	103	102	P/P	70 - 130
2227751	Manganese	96.4	99.7	P/P	70 - 130
2227751	Zinc	100	99.9	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P394326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227481	Aluminum	93.1		P	80 - 120
2227481	Antimony	98.1		P	80 - 120
2227481	Arsenic	95.3		P	80 - 120
2227481	Beryllium	89.4		P	80 - 120
2227481	Cadmium	98.6		P	80 - 120
2227481	Chromium	94.7		P	80 - 120
2227481	Copper	95.1		P	80 - 120
2227481	Lead	105		P	80 - 120
2227481	Nickel	94.7		P	80 - 120
2227481	Selenium	91.1		P	80 - 120
2227481	Silver	102		P	80 - 120
2227481	Thallium	105		P	80 - 120
2228011	Aluminum	92.3	91.0	P/P	80 - 120
2228011	Antimony	97.0	94.7	P/P	80 - 120
2228011	Arsenic	94.9	94.4	P/P	80 - 120
2228011	Beryllium	91.7	89.4	P/P	80 - 120
2228011	Cadmium	96.7	95.1	P/P	80 - 120
2228011	Chromium	94.8	93.6	P/P	80 - 120
2228011	Copper	94.4	92.9	P/P	80 - 120
2228011	Lead	104	100	P/P	80 - 120
2228011	Nickel	94.2	93.4	P/P	80 - 120
2228011	Selenium	93.8	92.7	P/P	80 - 120
2228011	Silver	100	101	P/P	80 - 120
2228011	Thallium	105	102	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227751	Aluminum	99.6	96.9	P/P	70 - 130
2227751	Antimony	94.6	92.7	P/P	70 - 130
2227751	Arsenic	97.2	93.9	P/P	70 - 130
2227751	Beryllium	99.2	92.4	P/P	70 - 130
2227751	Cadmium	84.0	82.5	P/P	70 - 130
2227751	Copper	96.3	94.4	P/P	70 - 130
2227751	Lead	98.8	96.6	P/P	70 - 130
2227751	Nickel	101	99.5	P/P	70 - 130
2227751	Selenium	89.7	89.1	P/P	70 - 130
2227751	Silver	96.2	94.1	P/P	70 - 130
2227751	Thallium	104	102	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227964	Bromide	96.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227518	Ammonia-N	97.2	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227874	Ammonia-N	99.6	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227924	Kjeldahl Nitrogen	104	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227859	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227450	NO2NO3-N	99.2	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227929	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227546	Total-P	98.7	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227614	Total-P	108	107	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P394523

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227445	Fluoride	97.8	99.4	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P394783

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227332	Organic Carbon	93.9	93.0	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P394784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2227741	Organic Carbon	93.3	92.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P394326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228011	Calcium	3.03	Spike	P	0 - 20
2228011	Iron	2.27	Spike	P	0 - 20
2228011	Magnesium	2.29	Spike	P	0 - 20
2228011	Manganese	2.65	Spike	P	0 - 20
2228011	Zinc	2.58	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P394495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227751	Calcium	2.11	Spike	P	0 - 20
2227751	Chromium	0.648	Spike	P	0 - 20
2227751	Iron	0.532	Spike	P	0 - 20
2227751	Magnesium	0.791	Spike	P	0 - 20
2227751	Manganese	3.22	Spike	P	0 - 20
2227751	Zinc	0.271	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2228011	Aluminum	1.33	Spike	P	0 - 20
2228011	Antimony	2.36	Spike	P	0 - 20
2228011	Arsenic	0.478	Spike	P	0 - 20
2228011	Beryllium	2.51	Spike	P	0 - 20
2228011	Cadmium	1.64	Spike	P	0 - 20
2228011	Chromium	1.28	Spike	P	0 - 20
2228011	Copper	1.62	Spike	P	0 - 20
2228011	Lead	3.39	Spike	P	0 - 20
2228011	Nickel	0.919	Spike	P	0 - 20
2228011	Selenium	1.13	Spike	P	0 - 20
2228011	Silver	0.493	Spike	P	0 - 20
2228011	Thallium	2.40	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227751	Aluminum	2.41	Spike	P	0 - 20
2227751	Antimony	2.00	Spike	P	0 - 20
2227751	Arsenic	3.41	Spike	P	0 - 20
2227751	Beryllium	7.13	Spike	P	0 - 20
2227751	Cadmium	1.80	Spike	P	0 - 20
2227751	Copper	2.00	Spike	P	0 - 20
2227751	Lead	2.32	Spike	P	0 - 20
2227751	Nickel	1.17	Spike	P	0 - 20
2227751	Selenium	0.700	Spike	P	0 - 20
2227751	Silver	2.20	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P394495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227751	Thallium	1.96	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P394556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227964	Bromide	2.28	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227518	Ammonia-N	0.187	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227874	Ammonia-N	0.389	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227924	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227859	Kjeldahl Nitrogen	1.61	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227450	NO2NO3-N	0.454	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227929	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227546	Total-P	0.732	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227614	Total-P	0.137	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P394513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227604	Total Alkalinity	0.101	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P394521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227154	Total Alkalinity	0.620	Sample	P	0 - 8.1

Reference Method: SM 2540 D-2011
Batch ID: P394828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227966	TSS	3.08	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P394516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227604	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P394523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227445	Fluoride	0.921	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P394783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227332	Organic Carbon	0.740	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: SM 5310 B-2011
Batch ID: P394784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2227741	Organic Carbon	1.13	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103834

Included Lab Sample IDs: 2227739, 2227741

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103856

Included Lab Sample IDs: 2227738, 2227740, 2227742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.7	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103858

Included Lab Sample IDs: 2227741, 2227743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.2	P/P	90 - 110
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103861

Included Lab Sample IDs: 2227739

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103867

Included Lab Sample IDs: 2227739, 2227741, 2227743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	99.1	P/P	90 - 110
Ammonia-N	99.6	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103879

Included Lab Sample IDs: 2227743

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A103898

Included Lab Sample IDs: 2227752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	97.9	P/P	95 - 105
Iron	101	96.8	P/P	95 - 105
Magnesium	101	96.2	P/P	95 - 105
Manganese	103	101	P/P	95 - 105
Zinc	96.7	94.6	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A103902

Included Lab Sample IDs: 2227742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.2	91.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103902

Included Lab Sample IDs: 2227742

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

Reference Method: SM 2320 B-2011

Run ID: A103903

Included Lab Sample IDs: 2227738, 2227740

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.6	91.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103903

Included Lab Sample IDs: 2227738, 2227740

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A103926

Included Lab Sample IDs: 2227751

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A103947

Included Lab Sample IDs: 2227751

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	95.4	95.7	P/P	95 - 105
Manganese	95.0	94.6	P/P	95 - 105
Zinc	95.3	95.8	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103951

Included Lab Sample IDs: 2227739, 2227741, 2227743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.3	98.0	P/P	90 - 110
Kjeldahl Nitrogen	93.6	95.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103955

Included Lab Sample IDs: 2227752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	98.3	P/P	90 - 110
Antimony	96.9	96.7	P/P	90 - 110
Arsenic	98.9	98.5	P/P	90 - 110
Beryllium	97.0	97.3	P/P	90 - 110
Cadmium	99.0	98.4	P/P	90 - 110
Chromium	97.6	98.3	P/P	90 - 110
Copper	98.0	97.5	P/P	90 - 110
Lead	107	108	P/P	90 - 110
Nickel	98.5	98.8	P/P	90 - 110
Selenium	98.1	98.0	P/P	90 - 110
Thallium	105	106	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A103972

Included Lab Sample IDs: 2227752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	106	98.2	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A104005

Included Lab Sample IDs: 2227739, 2227741, 2227743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	95.4	P/P	90 - 110
Organic Carbon	95.4	91.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104030

Included Lab Sample IDs: 2227751

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.6	96.9	P/P	90 - 110
Antimony	93.8	95.4	P/P	90 - 110
Arsenic	93.0	92.9	P/P	90 - 110
Beryllium	99.6	103	P/P	90 - 110
Cadmium	91.2	91.2	P/P	90 - 110
Copper	93.2	93.8	P/P	90 - 110
Lead	92.6	91.9	P/P	90 - 110
Nickel	92.9	94.8	P/P	90 - 110
Selenium	93.8	94.5	P/P	90 - 110
Thallium	96.6	95.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A104051

Included Lab Sample IDs: 2227751

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

Quality Assurance Report

Calibration Verification

* 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 SMP	MS
EPA 200.7 Rev. 4.4	Calcium	111	105	105				3.03
	Calcium	106						2.11
	Chromium	94.3	93.5	94.1				0.648
	Iron	106	104	106	103			2.27
	Iron	101	103	102				0.532
	Magnesium	105	102	102	99.0			2.29
	Magnesium	103						0.791
	Manganese	101	102	102	99.3			2.65
	Manganese	97.8	96.4	99.7				3.22
	Zinc	104	106	110	107			2.58
	Zinc	99.1	100	99.9				0.271
EPA 200.8 Rev. 5.4	Aluminum	95.6	92.3	91.0	93.1			1.33
	Aluminum	87.5	99.6	96.9				2.41
	Antimony	98.0	97.0	94.7	98.1			2.36
	Antimony	92.4	94.6	92.7				2.00
	Arsenic	98.2	94.9	94.4	95.3			0.478
	Arsenic	86.2	97.2	93.9				3.41
	Beryllium	89.7	91.7	89.4	89.4			2.51
	Beryllium	87.3	99.2	92.4				7.13
	Cadmium	98.0	96.7	95.1	98.6			1.64
	Cadmium	89.0	84.0	82.5				1.80
	Chromium	95.3	94.8	93.6	94.7			1.28
	Copper	96.2	94.4	92.9	95.1			1.62
	Copper	84.5	96.3	94.4				2.00
	Lead	104	104	100	105			3.39
	Lead	86.2	98.8	96.6				2.32
	Nickel	96.2	94.2	93.4	94.7			0.919
	Nickel	83.6	101	99.5				1.17
	Selenium	97.6	93.8	92.7	91.1			1.13
	Selenium	87.3	89.7	89.1				0.700
	Silver	104	100	101	102			0.493
	Silver	106	96.2	94.1				2.20
	Thallium	103	105	102	105			2.40
	Thallium	93.7	104	102				1.96
EPA 300.0 Rev. 2.1	Bromide	99.0	96.8	101				2.28
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	97.2	97.0				0.187
	Ammonia-N	97.8	99.6	100				0.389
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	104	98.5				2.72
	Kjeldahl Nitrogen	103	107	105				1.61
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	99.2	98.6				0.454
	NO2NO3-N	101	101	101				0.0
EPA 365.1 Rev. 2.0	Total-P	106	98.7	99.4				0.732
	Total-P	105	108	107				0.137
SM 2320 B-2011	Total Alkalinity	93.6					0.101	
	Total Alkalinity	93.3					0.620	
SM 2540 D-2011	TSS						3.08	
SM 4500 F-C-2011	Fluoride	97.1						0.0
	Fluoride	97.0	97.8	99.4				0.921
SM 5310 B-2011	Organic Carbon	94.6	93.9	93.0				0.740
	Organic Carbon	95.2	93.3	92.0				1.13

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2227751, 2227752
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2227751, 2227752
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2227738, 2227740, 2227742
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2227739, 2227741, 2227743
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2227739, 2227741, 2227743
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2227739, 2227741, 2227743
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2227739, 2227741, 2227743
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2227738, 2227740, 2227742
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2227738, 2227740, 2227742
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2227738, 2227740, 2227742
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2227739, 2227741, 2227743

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	02/26/2021	03/01/2021 13:35	Elliott D. Healy	03/04/2021 12:15	Betina Topolski	2227752
	02/26/2021	03/01/2021 13:35	Elliott D. Healy	03/08/2021 13:33	Betina Topolski	2227751
	02/26/2021	03/04/2021 16:20	Elliott D. Healy	03/05/2021 17:18	Betina Topolski	2227751
	02/26/2021	03/04/2021 16:20	Elliott D. Healy	03/05/2021 18:18	Betina Topolski	2227751
	02/26/2021	03/04/2021 16:20	Elliott D. Healy	03/08/2021 13:33	Betina Topolski	2227751
EPA 200.8 Rev. 5.4	02/26/2021	03/01/2021 13:35	Elliott D. Healy	03/08/2021 19:15	Alexander Thompson	2227752
	02/26/2021	03/01/2021 13:35	Elliott D. Healy	03/09/2021 12:41	Alexander Thompson	2227752
	02/26/2021	03/04/2021 16:20	Elliott D. Healy	03/11/2021 19:04	Josef B Mick	2227751
	02/26/2021	03/04/2021 16:20	Elliott D. Healy	03/12/2021 20:41	Josef B Mick	2227751
EPA 300.0 Rev. 2.1	02/26/2021			03/03/2021 16:09	Lipi Saha	2227738
	02/26/2021			03/03/2021 16:28	Lipi Saha	2227740
	02/26/2021			03/03/2021 16:46	Lipi Saha	2227742
EPA 350.1 Rev. 2.0	02/26/2021			03/03/2021 16:43	Ping Hua	2227739
	02/26/2021			03/03/2021 16:45	Ping Hua	2227741
	02/26/2021			03/03/2021 17:14	Ping Hua	2227743
EPA 351.2 Rev. 2.0	02/26/2021	03/05/2021 12:07	Yen Ta	03/08/2021 13:41	Virginia P. Brown	2227739
	02/26/2021	03/05/2021 12:07	Yen Ta	03/08/2021 13:43	Virginia P. Brown	2227741
	02/26/2021	03/05/2021 12:30	Benjamin T. Nordmann	03/08/2021 12:33	Virginia P. Brown	2227743
EPA 353.2 Rev. 2.0	02/26/2021			03/02/2021 08:38	Beverly Y. Sanders	2227739
	02/26/2021			03/02/2021 08:39	Beverly Y. Sanders	2227741
	02/26/2021			03/04/2021 09:21	Beverly Y. Sanders	2227743
EPA 365.1 Rev. 2.0	02/26/2021	03/02/2021 12:03	Shengyu Ding	03/03/2021 10:50	Shengyu Ding	2227739
	02/26/2021	03/02/2021 12:03	Shengyu Ding	03/03/2021 12:15	Shengyu Ding	2227741
	02/26/2021	03/02/2021 12:03	Shengyu Ding	03/03/2021 12:30	Shengyu Ding	2227743
SM 2320 B-2011	02/26/2021			03/04/2021 03:08	Dale L. Simmons	2227742
	02/26/2021			03/04/2021 22:13	Dale L. Simmons	2227738
	02/26/2021			03/04/2021 22:27	Dale L. Simmons	2227740
SM 2540 D-2011	02/26/2021			03/03/2021 09:21	Yijie Li	2227742
	02/26/2021			03/03/2021 09:24	Yijie Li	2227738
	02/26/2021			03/03/2021 09:27	Yijie Li	2227740
SM 4500 F-C-2011	02/26/2021			03/04/2021 03:08	Dale L. Simmons	2227742
	02/26/2021			03/04/2021 19:01	Dale L. Simmons	2227738
	02/26/2021			03/04/2021 19:06	Dale L. Simmons	2227740
SM 5310 B-2011	02/26/2021			03/11/2021 04:00	Madeline Gruver	2227743
	02/26/2021			03/11/2021 05:22	Madeline Gruver	2227741
	02/26/2021			03/11/2021 06:55	Madeline Gruver	2227739