

Chemical Analysis Report

WQAP-2022-11-17-04

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

Event Description: **Hurricane Ian Post Storm Monitoring - SE ROC**
Request ID: **RQ-2022-11-14-51**
Customer: **WQAP**
Project ID: **HURR-IAN**

Send Reports to:
FL Dept. of Environmental Protection
2199 South Rock Rd.
Fort Pierce, FL 334945
Attn: Jordan Skaggs

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

Date Certified: 01-DEC-2022 07:54

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the 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, Nutrients and Pesticides.

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: S-65 Downstream

Collection Date/Time: 11/16/2022 10:00

Field ID: 59629

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370572	DEP SOP: NU-094-1	Color (true)	170		PCU	P422528	
	EPA 120.1	Specific_Conductance	111		umhos/cm	P422777	
	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P422519	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P422738	
		Sulfate	5.1	A	mg SO4/L	P422739	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P422779	
	SM 2540 D-2015	TSS	6	I	mg/L	P422707	
2370573	SM 4500-F- C-2011	Fluoride	0.068	I	mg F/L	P422783	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P422506	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P422633	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P422664	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P422688	
2370580	EPA 8321B	SM 5310 B-2011	Organic Carbon	16	mg C/L	P422788	
		2,4-D	0.0045	I	ug/L	P422681	
		Acesulfame K	0.26	I	ug/L	P422568	
		2,4,5-T	0.0040	U	ug/L	P422681	
		AMPA	0.10	U	ug/L	P422568	
		Acetaminophen	0.0080	U	ug/L	P422681	
		Acetamiprid	0.0020	U	ug/L	P422681	
		Endothall	0.25	U	ug/L	P422568	MS
		Glufosinate	0.10	U	ug/L	P422568	
		Glyphosate	0.10	U	ug/L	P422568	
		Afidopyropen	0.0020	U	ug/L	P422681	
		Bentazon	0.015		ug/L	P422681	
		Sucralose	0.41		ug/L	P422568	
		Benzovindiflupyr	0.0020	U	ug/L	P422681	
		Carbamazepine	8.0E-04	U	ug/L	P422681	
		Clothianidin	0.0020	U	ug/L	P422681	
		Dinotefuran	0.0020	U	ug/L	P422681	
		Diuron	0.0020	U	ug/L	P422681	
		Fenuron	0.032	U	ug/L	P422681	
		Fluridone	0.0099		ug/L	P422681	
		Imazapyr	0.095		ug/L	P422681	
		Hydrocodone	0.0020	U	ug/L	P422681	
		Ibuprofen	0.20	U	ug/L	P422681	
		Imidacloprid	0.0072	I	ug/L	P422681	MS
		Linuron	0.0040	U	ug/L	P422681	
		Mandestrobin	0.0020	U	ug/L	P422681	
		MCP	0.0040	U	ug/L	P422681	
		Naproxen	0.0080	U	ug/L	P422681	
		Primidone	0.0040	U	ug/L	P422681	
		Pyraclostrobin	0.0020	U	ug/L	P422681	
		Silvex	0.0040	U	ug/L	P422681	
		Thiamethoxam	0.0020	U	ug/L	P422681	MS

Field ID: 59629

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370580	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P422681	
		Triclopyr	0.0040	U	ug/L	P422681	
2370582	EPA 200.7 Rev. 4.4	Calcium	9.90		mg/L	P422537	
		Magnesium	2.68		mg/L	P422537	
		Potassium	2.8		mg/L	P422537	
		Sodium	10.1		mg/L	P422537	
	SM 2340 B-2011	Hardness	35.7		mg/L	P422537	

Ref. Method and Comment:
 DEP SOP: NU-094-1: 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 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.
 EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank

Collection Date/Time: 11/16/2022 10:15

Field ID: FB_11162022

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370574	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P422528	
	EPA 120.1	Specific_Conductance	4.3	I	umhos/cm	P422777	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P422520	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P422738	
		Sulfate	0.20	U	mg SO4/L	P422739	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P422779	
	SM 2540 D-2015	TSS	2	U	mg/L	P422707	
2370575	SM 4500-F- C-2011	Fluoride	0.17		mg F/L	P422783	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P422506	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P422633	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P422664	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P422688	
2370581	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P422788	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P422681	
		Acesulfame K	0.10	U	ug/L	P422568	
		2,4,5-T	0.0040	U	ug/L	P422681	
		AMPA	0.10	U	ug/L	P422568	
		Acetaminophen	0.0080	U	ug/L	P422681	
		Acetamiprid	0.0020	U	ug/L	P422681	
		Endothall	0.25	U	ug/L	P422568	MS
		Glufosinate	0.10	U	ug/L	P422568	
		Glyphosate	0.10	U	ug/L	P422568	
		Afidopyropen	0.0020	U	ug/L	P422681	
		Bentazon	8.0E-04	U	ug/L	P422681	
		Sucralose	0.010	U	ug/L	P422568	
		Benzovindiflupyr	0.0020	U	ug/L	P422681	
		Carbamazepine	8.0E-04	U	ug/L	P422681	
		Clothianidin	0.0020	U	ug/L	P422681	
		Dinotefuran	0.0020	U	ug/L	P422681	
		Diuron	0.0020	U	ug/L	P422681	
		Fenuron	0.032	U	ug/L	P422681	
		Fluridone	8.0E-04	U	ug/L	P422681	
		Imazapyr	0.0040	U	ug/L	P422681	
		Hydrocodone	0.0020	U	ug/L	P422681	
		Ibuprofen	0.20	U	ug/L	P422681	
		Imidacloprid	0.0020	U	ug/L	P422681	MS
		Linuron	0.0040	U	ug/L	P422681	
		Mandestrobin	0.0020	U	ug/L	P422681	
		MCPP	0.0040	U	ug/L	P422681	
		Naproxen	0.0080	U	ug/L	P422681	
		Primidone	0.0040	U	ug/L	P422681	
		Pyraclostrobin	0.0020	U	ug/L	P422681	
		Silvex	0.0040	U	ug/L	P422681	
		Thiamethoxam	0.0020	U	ug/L	P422681	MS

Field ID: FB_11162022

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2370581	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P422681	
		Triclopyr	0.0040	U	ug/L	P422681	
2370583	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P422537	
		Magnesium	0.040	U	mg/L	P422537	
		Potassium	0.30	U	mg/L	P422537	
		Sodium	0.50	U	mg/L	P422537	
	SM 2340 B-2011	Hardness	0.35	U	mg/L	P422537	

Ref. Method and Comment:

DEP SOP: NU-094-1: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 120.1: The result was confirmed on 11/29/2022.

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

SM 4500-F- C-2011: The result was confirmed on 11/29/2022.

EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

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

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P422528

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 120.1
Batch ID: P422777

Component	Result	Code	Units
Specific_Conductance	2.0	U	umhos/cm

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422519

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422520

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422537

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422738

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422739

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422506

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422633

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422664

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422688

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

Reference Method: EPA 8321B
Batch ID: P422568

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P422681

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.032	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.20	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P422779

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

Reference Method: SM 2540 D-2015
Batch ID: P422707

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P422783

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422788

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: P422528

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

Reference Method: EPA 120.1
Batch ID: P422777

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422519

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	98.3		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P422520

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	99.9		P	85 - 115
Magnesium	98.3		P	85 - 115
Potassium	98.2		P	85 - 115
Sodium	98.1		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422738

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422506

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422633

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P422664

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P422688

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

Reference Method: EPA 8321B

Batch ID: P422568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	136		P	40 - 150
AMPA	111		P	40 - 150
Endothall	112		P	40 - 150
Glufosinate	107		P	40 - 150
Glyphosate	111		P	40 - 150
Sucralose	102		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P422681

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	88.9		P	40 - 150
2,4,5-T	70.0		P	40 - 150
Acetaminophen	88.1		P	30 - 150
Acetamiprid	78.0		P	40 - 150
Afidopyropen	57.9		P	30 - 150
Bentazon	94.0		P	30 - 150
Benzovindiflupyr	83.6		P	40 - 150
Carbamazepine	81.3		P	40 - 150
Clothianidin	96.7		P	40 - 150
Dinotefuran	102		P	40 - 150
Diuron	85.7		P	40 - 150
Fenuron	101		P	40 - 150
Fluridone	98.7		P	40 - 150
Hydrocodone	94.8		P	40 - 150
Ibuprofen	86.2		P	40 - 150
Imazapyr	88.4		P	40 - 150
Imidacloprid	102		P	40 - 150
Linuron	89.0		P	40 - 150
Mandestrobin	93.5		P	40 - 150
MCPP	94.7		P	40 - 150
Naproxen	60.1		P	40 - 150
Primidone	83.3		P	40 - 150
Pyraclostrobin	80.8		P	40 - 150
Silvex	72.2		P	40 - 150
Thiamethoxam	95.7		P	40 - 150
Tolfenpyrad	48.4		P	30 - 150
Triclopyr	79.0		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P422779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	94 - 106

Reference Method: SM 2540 D-2015
Batch ID: P422707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	99.4		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P422783

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

Reference Method: SM 5310 B-2011
Batch ID: P422788

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P422537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370235	Magnesium	98.7		P	80 - 120
2370235	Potassium	99.6	98.4	P/P	80 - 120
2370235	Sodium	99.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370572	Chloride	95.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370572	Sulfate	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370573	Ammonia-N	99.4	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422633

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370587	Kjeldahl Nitrogen	93.0	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370804	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422688

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370670	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P422568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370304	Acesulfame K	53.9	49.8	P/P	40 - 150
2370304	AMPA	85.9	77.0	P/P	40 - 150
2370304	Endothall	168	170	F/F	40 - 150
2370304	Glufosinate	81.0	77.8	P/P	40 - 150
2370304	Glyphosate	103	105	P/P	40 - 150
2370304	Sucralose	92.5	98.0	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P422681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370840	2,4-D	119	124	P/P	40 - 150
2370840	2,4,5-T	70.4	81.3	P/P	40 - 150
2370840	Acetaminophen	104	104	P/P	30 - 150
2370840	Acetamiprid	64.3	64.8	P/P	40 - 150
2370840	Afidopyropen	59.4	69.6	P/P	30 - 150
2370840	Benzovindiflupyr	79.4	83.4	P/P	40 - 150
2370840	Carbamazepine	72.2	67.8	P/P	40 - 150
2370840	Clothianidin	135	137	P/P	40 - 150
2370840	Dinotefuran	138	143	P/P	40 - 150
2370840	Diuron	57.7	61.9	P/P	40 - 150
2370840	Fenuron	97.9	91.9	P/P	40 - 150
2370840	Hydrocodone	128	119	P/P	40 - 150
2370840	Ibuprofen	76.5	83.2	P/P	40 - 150
2370840	Imidacloprid	157	146	F/P	40 - 150
2370840	Linuron	67.9	69.3	P/P	40 - 150
2370840	Mandestrobin	81.5	86.3	P/P	40 - 150
2370840	MCPP	102	104	P/P	40 - 150
2370840	Naproxen	81.8	101	P/P	40 - 150
2370840	Primidone	119	106	P/P	40 - 150
2370840	Pyraclostrobin	80.0	84.3	P/P	40 - 150
2370840	Silvex	101	107	P/P	40 - 150
2370840	Thiamethoxam	163	158	F/F	40 - 150
2370840	Tolfenpyrad	50.8	51.4	P/P	30 - 150
2370840	Triclopyr	75.6	93.6	P/P	40 - 150

Reference Method: SM 4500-F- C-2011

Batch ID: P422783

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370209	Fluoride	100	99.3	P/P	94 - 104

Reference Method: SM 5310 B-2011

Batch ID: P422788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2370067	Organic Carbon	98.9	98.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 120.1

Batch ID: P422777

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370209	Specific_Conductance	9.08	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P422519

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370589	Turbidity	16.1	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P422520

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370586	Turbidity	2.62	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P422537

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370235	Calcium	0.123	Spike	P	0 - 20
2370235	Magnesium	0.988	Spike	P	0 - 20
2370235	Potassium	0.736	Spike	P	0 - 20
2370235	Sodium	0.120	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P422738

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370572	Chloride	0.708	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P422739

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370572	Sulfate	0.926	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P422506

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370573	Ammonia-N	0.485	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P422633

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370587	Kjeldahl Nitrogen	2.70	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P422664

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370804	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P422688

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370670	Total-P	0.594	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P422568

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370304	Acesulfame K	7.90	Spike	P	0 - 30
2370304	AMPA	9.41	Spike	P	0 - 30
2370304	Endothall	0.917	Spike	P	0 - 30
2370304	Glufosinate	4.04	Spike	P	0 - 30
2370304	Glyphosate	1.43	Spike	P	0 - 30
2370304	Sucralose	5.16	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P422681

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370840	2,4-D	4.01	Spike	P	0 - 30
2370840	2,4,5-T	14.3	Spike	P	0 - 30
2370840	Acetaminophen	0.320	Spike	P	0 - 30
2370840	Acetamiprid	0.869	Spike	P	0 - 30
2370840	Afidopyropen	15.8	Spike	P	0 - 30
2370840	Bentazon	2.69	Spike	P	0 - 30
2370840	Benzovindiflupyr	4.94	Spike	P	0 - 30
2370840	Carbamazepine	4.42	Spike	P	0 - 30
2370840	Clothianidin	1.53	Spike	P	0 - 30
2370840	Dinotefuran	3.36	Spike	P	0 - 30
2370840	Diuron	7.10	Spike	P	0 - 30
2370840	Fenuron	6.39	Spike	P	0 - 30
2370840	Fluridone	0.579	Spike	P	0 - 30
2370840	Hydrocodone	7.36	Spike	P	0 - 30
2370840	Ibuprofen	8.46	Spike	P	0 - 30
2370840	Imazapyr	1.88	Spike	P	0 - 30
2370840	Imidacloprid	6.84	Spike	P	0 - 30
2370840	Linuron	2.14	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P422681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370840	Mandestrobin	5.80	Spike	P	0 - 30
2370840	MCCP	1.15	Spike	P	0 - 30
2370840	Naproxen	20.9	Spike	P	0 - 30
2370840	Primidone	9.11	Spike	P	0 - 30
2370840	Pyraclostrobin	5.30	Spike	P	0 - 30
2370840	Silvex	5.80	Spike	P	0 - 30
2370840	Thiamethoxam	3.39	Spike	P	0 - 30
2370840	Tolfenpyrad	1.06	Spike	P	0 - 30
2370840	Triclopyr	21.3	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P422779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370209	Total Alkalinity	0.105	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P422783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370209	Fluoride	0.516	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2370067	Organic Carbon	0.0363	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2370580

Field Sample ID: 59629

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	109	P	30 - 160
EPA 8321B	Acetaminophen-d4	83.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	65.6	P	30 - 160
EPA 8321B	Diuron-d6	59.1	P	30 - 160
EPA 8321B	Endothall-d6	134	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	112	P	30 - 160
EPA 8321B	Ibuprofen-d3	75.7	P	30 - 160
EPA 8321B	Primidone-d5	116	P	30 - 160
EPA 8321B	Sucralose-d6	120	P	30 - 160

Lab Sample ID: 2370581

Field Sample ID: FB_11162022

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	97.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	87.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	88.8	P	30 - 160
EPA 8321B	Diuron-d6	92.5	P	30 - 160
EPA 8321B	Endothall-d6	99.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	110	P	30 - 160
EPA 8321B	Ibuprofen-d3	96.3	P	30 - 160
EPA 8321B	Primidone-d5	107	P	30 - 160
EPA 8321B	Sucralose-d6	124	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115996

Included Lab Sample IDs: 2370573, 2370575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116002

Included Lab Sample IDs: 2370572, 2370574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: DEP SOP: NU-094-1

Run ID: A116006

Included Lab Sample IDs: 2370572, 2370574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.8	P/P	90 - 110
Color (true)	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116065

Included Lab Sample IDs: 2370573, 2370575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116108

Included Lab Sample IDs: 2370572, 2370574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.1	99.7	P/P	90 - 110
Sulfate	96.9	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116111

Included Lab Sample IDs: 2370573

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116113

Included Lab Sample IDs: 2370573, 2370575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116114

Included Lab Sample IDs: 2370575

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116116

Included Lab Sample IDs: 2370582, 2370583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.2	99.5	P/P	95 - 105
Calcium	99.5	98.6	P/P	90 - 110
Magnesium	99.1	98.3	P/P	90 - 110
Magnesium	99.2	99.1	P/P	95 - 105
Potassium	97.2	97.5	P/P	95 - 105
Potassium	97.5	96.9	P/P	90 - 110
Sodium	98.8	99.0	P/P	95 - 105
Sodium	99.0	97.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A116135

Included Lab Sample IDs: 2370580, 2370581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	128	108	P/P	60 - 160
Endothall	115	109	P/P	60 - 160
Glufosinate	110	104	P/P	60 - 160
Glyphosate	107	121	P/P	60 - 160

Reference Method: EPA 120.1

Run ID: A116138

Included Lab Sample IDs: 2370572, 2370574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Specific_Conductance	99.5	100	P/P	85 - 115

Reference Method: SM 2320 B-2011

Run ID: A116138

Included Lab Sample IDs: 2370572, 2370574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.6	97.4	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A116138

Included Lab Sample IDs: 2370572, 2370574

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A116141

Included Lab Sample IDs: 2370580, 2370581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	97.6	147	P/P	60 - 160
Sucralose	94.5	106	P/P	60 - 160

Reference Method: SM 5310 B-2011

Run ID: A116142

Included Lab Sample IDs: 2370573, 2370575

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A116170

Included Lab Sample IDs: 2370580, 2370581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	95.9	P/P	50 - 150
2,4,5-T	111	102	P/P	50 - 150
Acetaminophen	106	99.7	P/P	60 - 160
Acetamiprid	109	105	P/P	50 - 150
Afidopyropen	107	89.5	P/P	50 - 150
Bentazon	98.9	102	P/P	50 - 160
Benzovindiflupyr	115	109	P/P	50 - 150
Carbamazepine	108	107	P/P	60 - 150
Clothianidin	110	96.8	P/P	60 - 150
Dinotefuran	109	113	P/P	50 - 150
Diuron	127	112	P/P	60 - 160
Fenuron	107	107	P/P	60 - 150
Fluridone	111	110	P/P	60 - 160
Hydrocodone	112	104	P/P	60 - 150
Ibuprofen	109	96.7	P/P	50 - 160
Imazapyr	96.3	103	P/P	50 - 150
Imidacloprid	96.6	94.0	P/P	60 - 150
Linuron	112	118	P/P	60 - 150
Mandestrobin	108	109	P/P	50 - 150
MCPP	112	109	P/P	50 - 150
Naproxen	92.8	73.1	P/P	50 - 160
Primidone	114	101	P/P	60 - 150
Pyraclostrobin	105	105	P/P	60 - 150
Silvex	99.3	94.3	P/P	50 - 150
Thiamethoxam	105	104	P/P	50 - 150
Tolfenpyrad	104	103	P/P	60 - 150
Triclopyr	119	112	P/P	50 - 150

* 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
DEP SOP: NU-094-1	Color (true)	101					
EPA 120.1	Specific_Conductance	99.4				9.08	
EPA 180.1 Rev. 2.0	Turbidity	98.3				16.1	
	Turbidity	99.0				2.62	
EPA 200.7 Rev. 4.4	Calcium	99.9					0.123
	Magnesium	98.3	98.7				0.988
	Potassium	98.2	99.6	98.4			0.736
	Sodium	98.1	99.7				0.120
EPA 300.0 Rev. 2.1	Chloride	96.9	95.4			0.708	
	Sulfate	93.9	95.1			0.926	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	99.4	98.6			0.485
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	93.0	97.0			2.70
EPA 353.2 Rev. 2.0	NO2NO3-N	103	103	102			0.487
EPA 365.1 Rev. 2.0	Total-P	105	104	104			0.594
EPA 8321B	2,4-D	88.9	119	124			4.01
	2,4,5-T	70.0	70.4	81.3			14.3
	Acesulfame K	136	53.9	49.8			7.90
	Acetaminophen	88.1	104	104			0.320
	Acetamiprid	78.0	64.3	64.8			0.869
	Afidopyropen	57.9	59.4	69.6			15.8
	AMPA	111	85.9	77.0			9.41
	Bentazon	94.0					2.69
	Benzovindiflupyr	83.6	79.4	83.4			4.94
	Carbamazepine	81.3	72.2	67.8			4.42
	Clothianidin	96.7	135	137			1.53
	Dinotefuran	102	138	143			3.36
	Diuron	85.7	57.7	61.9			7.10
	Endothall	112	168	170			0.917
	Fenuron	101	97.9	91.9			6.39
	Fluridone	98.7					0.579
	Glufosinate	107	81.0	77.8			4.04
	Glyphosate	111	103	105			1.43
	Hydrocodone	94.8	128	119			7.36
	Ibuprofen	86.2	76.5	83.2			8.46
	Imazapyr	88.4					1.88
	Imidacloprid	102	157	146			6.84
	Linuron	89.0	67.9	69.3			2.14
	Mandestrobin	93.5	81.5	86.3			5.80
	MCPP	94.7	102	104			1.15
	Naproxen	60.1	81.8	101			20.9
	Primidone	83.3	119	106			9.11
	Pyraclostrobin	80.8	80.0	84.3			5.30
	Silvex	72.2	101	107			5.80
	Sucralose	102	92.5	98.0			5.16
	Thiamethoxam	95.7	163	158			3.39
	Tolfenpyrad	48.4	50.8	51.4			1.06
	Triclopyr	79.0	75.6	93.6			21.3
SM 2320 B-2011	Total Alkalinity	98.6				0.105	
SM 2540 D-2015	TSS	99.4					
SM 4500-F- C-2011	Fluoride	100	100	99.3			0.516
SM 5310 B-2011	Organic Carbon	100	98.9	98.9			0.0363

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2370572, 2370574
EPA 120.1	Specific Conductivity in aqueous matrices (umhos/cm at 25 deg C).	2370572, 2370574
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2370572, 2370574
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2370582, 2370583
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2370572, 2370574
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2370572, 2370574
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2370573, 2370575
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2370573, 2370575
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2370573, 2370575
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2370573, 2370575
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2370580, 2370581
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2370572, 2370574
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2370582, 2370583
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2370572, 2370574
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2370572, 2370574
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2370573, 2370575

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	11/17/2022			11/17/2022 14:55	Chandler E Cox	2370574
	11/17/2022			11/17/2022 15:15	Chandler E Cox	2370572
EPA 120.1	11/17/2022			11/23/2022 02:28	Dale L. Simmons	2370572
	11/17/2022			11/23/2022 02:38	Dale L. Simmons	2370574
EPA 180.1 Rev. 2.0	11/17/2022			11/17/2022 14:41	Anna M. Plaviak	2370572
	11/17/2022			11/17/2022 14:51	Anna M. Plaviak	2370574
EPA 200.7 Rev. 4.4	11/17/2022	11/18/2022 08:30	Megan Whitefoot	11/22/2022 14:03	McKinley C Carter	2370583
	11/17/2022	11/18/2022 08:30	Megan Whitefoot	11/22/2022 16:13	McKinley C Carter	2370582
EPA 300.0 Rev. 2.1	11/17/2022			11/22/2022 11:16	Anna M. Plaviak	2370572
	11/17/2022			11/22/2022 11:46	Anna M. Plaviak	2370574
EPA 350.1 Rev. 2.0	11/17/2022			11/17/2022 13:48	Ping Hua	2370573
	11/17/2022			11/17/2022 13:52	Ping Hua	2370575
EPA 351.2 Rev. 2.0	11/17/2022	11/21/2022 13:35	Alexandra J Mattheus	11/22/2022 16:42	Alexandra J Mattheus	2370573
	11/17/2022	11/21/2022 13:35	Alexandra J Mattheus	11/22/2022 16:44	Alexandra J Mattheus	2370575
EPA 353.2 Rev. 2.0	11/17/2022			11/21/2022 10:15	Beverly Y. Sanders	2370573
	11/17/2022			11/21/2022 10:16	Beverly Y. Sanders	2370575
EPA 365.1 Rev. 2.0	11/17/2022	11/22/2022 12:22	Adam P Silver	11/22/2022 15:06	James L Waggeberby	2370573
	11/17/2022	11/22/2022 12:22	Adam P Silver	11/22/2022 17:28	James L Waggeberby	2370575
EPA 8321B	11/17/2022	11/22/2022 06:30	Umesh Chiluwal	11/22/2022 08:21	Umesh Chiluwal	2370580
	11/17/2022	11/22/2022 06:30	Umesh Chiluwal	11/22/2022 08:34	Umesh Chiluwal	2370581
	11/17/2022	11/22/2022 06:30	Umesh Chiluwal	11/23/2022 00:32	Umesh Chiluwal	2370580
	11/17/2022	11/22/2022 06:30	Umesh Chiluwal	11/23/2022 00:47	Umesh Chiluwal	2370581
	11/17/2022	11/22/2022 09:30	June Rhew	11/23/2022 16:39	Juyoung Kim	2370580
	11/17/2022	11/22/2022 09:30	June Rhew	11/23/2022 17:00	Juyoung Kim	2370581
SM 2320 B-2011	11/17/2022			11/23/2022 02:28	Dale L. Simmons	2370572
	11/17/2022			11/23/2022 02:38	Dale L. Simmons	2370574
SM 2340 B-2011	11/17/2022			11/22/2022 14:03	McKinley C Carter	2370583
	11/17/2022			11/22/2022 16:13	McKinley C Carter	2370582
SM 2540 D-2015	11/17/2022			11/18/2022 16:39	Yijie Li	2370572, 2370574
SM 4500-F- C-2011	11/17/2022			11/23/2022 02:28	Dale L. Simmons	2370572
	11/17/2022			11/23/2022 02:38	Dale L. Simmons	2370574
SM 5310 B-2011	11/17/2022			11/22/2022 22:30	Touraj Touran	2370573
	11/17/2022			11/22/2022 22:44	Touraj Touran	2370575