

Chemical Analysis Report

WQAP-2022-12-13-04

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-2022-12-12-12**
Customer: **WQAP**
Project ID: **HURR-IAN**

Send Reports to:
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 03-JAN-2023 17:38



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: 12/12/2022 11:00

Field ID: 59629

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2374649	DEP SOP: NU-094-1	Color (true)	160		PCU	P423472	
	EPA 120.1	Specific_Conductance	133		umhos/cm	P423711	
	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P423468	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P423713	
		Sulfate	5.4		mg SO4/L	P423716	
	SM 2320 B-2011	Total Alkalinity	25		mg CaCO3/L	P423719	
	SM 2540 D-2015	TSS	4	I	mg/L	P423786	
2374650	SM 4500-F- C-2011	Fluoride	0.074	I	mg F/L	P423722	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P423780	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P423559	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P423525	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P424011	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P423708	
2374654	EPA 8321B	2,4-D	0.29		ug/L	P423422	
		Acesulfame K	0.10	U	ug/L	P423367	
		2,4,5-T	0.0040	U	ug/L	P423422	
		AMPA	0.10	I	ug/L	P423367	
		Acetaminophen	0.0080	U	ug/L	P423422	
		Acetamiprid	0.0020	U	ug/L	P423422	
		Endothall	0.25	U	ug/L	P423367	
		Glufosinate	0.10	U	ug/L	P423367	
		Glyphosate	0.10	U	ug/L	P423367	
		Afidopyropen	0.0020	U	ug/L	P423422	
		Bentazon	0.022		ug/L	P423422	
		Sucralose	0.31		ug/L	P423367	
		Benzovindiflupyr	0.0020	U	ug/L	P423422	
		Carbamazepine	8.0E-04	U	ug/L	P423422	
		Clothianidin	0.0020	U	ug/L	P423422	
		Dinotefuran	0.0020	U	ug/L	P423422	
		Diuron	0.0020	U	ug/L	P423422	
		Fenuron	0.032	U	ug/L	P423422	
		Fluridone	0.011		ug/L	P423422	
		Imazapyr	0.10		ug/L	P423422	
		Hydrocodone	0.0020	U	ug/L	P423422	
		Ibuprofen	0.20	U	ug/L	P423422	
		Imidacloprid	0.0069	I	ug/L	P423422	
		Linuron	0.0040	U	ug/L	P423422	
		Mandestrobin	0.0020	U	ug/L	P423422	
		MCPP	0.0040	U	ug/L	P423422	
		Naproxen	0.0080	U	ug/L	P423422	
		Primidone	0.0040	U	ug/L	P423422	
		Pyraclostrobin	0.0020	U	ug/L	P423422	
		Silvex	0.0040	U	ug/L	P423422	
		Thiamethoxam	0.0020	U	ug/L	P423422	

Field ID: 59629

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2374654	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P423422	
		Triclopyr	0.0040	U	ug/L	P423422	
2374655	EPA 200.7 Rev. 4.4	Calcium	10.1		mg/L	P423520	
		Magnesium	2.63		mg/L	P423520	
		Potassium	2.9		mg/L	P423520	
		Sodium	10.3		mg/L	P423520	
	SM 2340 B-2011	Hardness	36.1		mg/L	P423520	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries 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: P423472

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 120.1
Batch ID: P423711

Component	Result	Code	Units
Specific_Conductance	2.0	U	umhos/cm

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423468

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423520

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: P423713

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423716

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423780

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423559

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423525

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424011

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

Reference Method: EPA 8321B
Batch ID: P423367

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: P423422

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

Reference Method: SM 2320 B-2011
Batch ID: P423719

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2015
Batch ID: P423786

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P423722

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P423708

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: P423472

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.7		P	90 - 110

Reference Method: EPA 120.1
Batch ID: P423711

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423468

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423520

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	80 - 120
Magnesium	98.2		P	80 - 120
Potassium	94.7		P	80 - 120
Sodium	99.6		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423713

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423780

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423559

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423525

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P424011

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

Reference Method: EPA 8321B

Batch ID: P423367

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	97.0		P	40 - 150
AMPA	90.7		P	40 - 150
Endothall	101		P	40 - 150
Glufosinate	96.9		P	40 - 150
Glyphosate	96.7		P	40 - 150
Sucralose	94.9		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P423422

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	77.3		P	40 - 150
2,4,5-T	78.5		P	40 - 150
Acetaminophen	103		P	30 - 150
Acetamiprid	81.2		P	40 - 150
Afidopyropen	60.1		P	30 - 150
Bentazon	102		P	30 - 150
Benzovindiflupyr	92.9		P	40 - 150
Carbamazepine	95.3		P	40 - 150
Clothianidin	106		P	40 - 150
Dinotefuran	105		P	40 - 150
Diuron	92.2		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	99.2		P	40 - 150
Hydrocodone	105		P	40 - 150
Ibuprofen	66.5		P	40 - 150
Imazapyr	89.6		P	40 - 150
Imidacloprid	114		P	40 - 150
Linuron	84.8		P	40 - 150
Mandestrobin	94.8		P	40 - 150
MCPP	90.0		P	40 - 150
Naproxen	63.5		P	40 - 150
Primidone	103		P	40 - 150
Pyraclostrobin	89.5		P	40 - 150
Silvex	78.9		P	40 - 150
Thiamethoxam	101		P	40 - 150
Tolfenpyrad	42.6		P	30 - 150
Triclopyr	90.0		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P423719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P423786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	95.2		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P423722

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

Reference Method: SM 5310 B-2011
Batch ID: P423708

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P423520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374640	Calcium	107		P	80 - 120
2374640	Magnesium	99.9	96.0	P/P	80 - 120
2374640	Potassium	101	97.0	P/P	80 - 120
2374640	Sodium	103	100	P/P	80 - 120
2374878	Calcium	94.6		P	80 - 120
2374878	Magnesium	97.4		P	80 - 120
2374878	Potassium	98.9		P	80 - 120
2374878	Sodium	102		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P423713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374495	Chloride	99.1		P	90 - 110
2374676	Chloride	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P423716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374495	Sulfate	99.7		P	90 - 110
2374676	Sulfate	94.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P423780

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2373820	Ammonia-N	100	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P423525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374650	NO2NO3-N	95.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P424011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374631	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P423367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374117	Acesulfame K	65.5	58.1	P/P	40 - 150
2374117	AMPA	78.4	77.8	P/P	40 - 150
2374117	Endothall	107	106	P/P	40 - 150
2374117	Glufosinate	97.2	97.3	P/P	40 - 150
2374117	Glyphosate	97.3	103	P/P	40 - 150
2374117	Sucralose	83.2	101	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P423422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374876	2,4-D	82.5	83.5	P/P	40 - 150
2374876	2,4,5-T	82.2	84.3	P/P	40 - 150
2374876	Acetaminophen	102	98.7	P/P	30 - 150
2374876	Acetamiprid	85.4	87.4	P/P	40 - 150
2374876	Afidopyropen	72.9	70.9	P/P	30 - 150
2374876	Bentazon	88.8	96.2	P/P	30 - 150
2374876	Benzovindiflupyr	85.5	84.3	P/P	40 - 150
2374876	Carbamazepine	90.5	89.1	P/P	40 - 150
2374876	Clothianidin	98.7	98.6	P/P	40 - 150
2374876	Dinotefuran	97.3	97.8	P/P	40 - 150
2374876	Diuron	80.2	78.1	P/P	40 - 150
2374876	Fenuron	99.8	102	P/P	40 - 150
2374876	Fluridone	91.0	90.2	P/P	40 - 150
2374876	Hydrocodone	95.4	93.5	P/P	40 - 150
2374876	Ibuprofen	68.8	67.1	P/P	40 - 150
2374876	Imazapyr	91.3	87.5	P/P	40 - 150
2374876	Imidacloprid	109	116	P/P	40 - 150
2374876	Linuron	82.3	78.3	P/P	40 - 150
2374876	Mandestrobin	88.4	84.1	P/P	40 - 150
2374876	MCCPP	95.7	93.6	P/P	40 - 150
2374876	Naproxen	84.8	96.4	P/P	40 - 150
2374876	Primidone	89.5	92.1	P/P	40 - 150
2374876	Pyraclostrobin	63.3	76.6	P/P	40 - 150
2374876	Silvex	80.0	84.4	P/P	40 - 150
2374876	Thiamethoxam	96.4	96.9	P/P	40 - 150
2374876	Tolfenpyrad	37.6	47.7	P/P	30 - 150
2374876	Triclopyr	91.5	88.0	P/P	40 - 150

Reference Method: SM 4500-F- C-2011

Batch ID: P423722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374317	Fluoride	101	99.7	P/P	94 - 104

Reference Method: SM 5310 B-2011

Batch ID: P423708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2374775	Organic Carbon	99.2	99.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P423472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374772	Color (true)	3.46	Sample	P	0 - 20

Reference Method: EPA 120.1
Batch ID: P423711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374317	Specific_Conductance	0.394	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P423468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374814	Turbidity	8.99	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P423520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374640	Calcium	2.26	Spike	P	0 - 20
2374640	Magnesium	2.69	Spike	P	0 - 20
2374640	Potassium	3.16	Spike	P	0 - 20
2374640	Sodium	2.06	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374495	Chloride	0.182	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P423716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374495	Sulfate	0.227	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P423780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2373820	Ammonia-N	4.00	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P423559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374616	Kjeldahl Nitrogen	7.11	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P423525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374650	NO2NO3-N	0.902	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P424011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374631	Total-P	1.30	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P423367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374117	Acesulfame K	11.8	Spike	P	0 - 30
2374117	AMPA	0.815	Spike	P	0 - 30
2374117	Endothall	0.813	Spike	P	0 - 30
2374117	Glufosinate	0.0448	Spike	P	0 - 30
2374117	Glyphosate	5.56	Spike	P	0 - 30
2374117	Sucralose	18.4	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P423422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374876	2,4-D	1.19	Spike	P	0 - 30
2374876	2,4,5-T	2.56	Spike	P	0 - 30
2374876	Acetaminophen	3.18	Spike	P	0 - 30
2374876	Acetamiprid	2.25	Spike	P	0 - 30
2374876	Afidopyropen	2.76	Spike	P	0 - 30
2374876	Bentazon	6.09	Spike	P	0 - 30
2374876	Benzovindiflupyr	1.41	Spike	P	0 - 30
2374876	Carbamazepine	1.56	Spike	P	0 - 30
2374876	Clothianidin	0.0828	Spike	P	0 - 30
2374876	Dinotefuran	0.464	Spike	P	0 - 30
2374876	Diuron	2.62	Spike	P	0 - 30
2374876	Fenuron	2.23	Spike	P	0 - 30
2374876	Fluridone	0.911	Spike	P	0 - 30
2374876	Hydrocodone	2.02	Spike	P	0 - 30
2374876	Ibuprofen	2.57	Spike	P	0 - 30
2374876	Imazapyr	4.20	Spike	P	0 - 30
2374876	Imidacloprid	6.24	Spike	P	0 - 30
2374876	Linuron	4.90	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P423422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374876	Mandestrobin	4.93	Spike	P	0 - 30
2374876	MCCP	2.28	Spike	P	0 - 30
2374876	Naproxen	12.8	Spike	P	0 - 30
2374876	Primidone	2.92	Spike	P	0 - 30
2374876	Pyraclostrobin	19.1	Spike	P	0 - 30
2374876	Silvex	5.31	Spike	P	0 - 30
2374876	Thiamethoxam	0.476	Spike	P	0 - 30
2374876	Tolfenpyrad	23.9	Spike	P	0 - 30
2374876	Triclopyr	3.96	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P423719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374317	Total Alkalinity	0.0861	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P423722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374317	Fluoride	0.966	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P423708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2374775	Organic Carbon	0.176	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2374654

Field Sample ID: 59629

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160
EPA 8321B	Acetaminophen-d4	121	P	30 - 160
EPA 8321B	Carbamazepine-d10	85.0	P	30 - 160
EPA 8321B	Diuron-d6	66.9	P	30 - 160
EPA 8321B	Endothall-d6	107	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	80.3	P	30 - 160
EPA 8321B	Primidone-d5	116	P	30 - 160
EPA 8321B	Sucralose-d6	82.1	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A116398

Included Lab Sample IDs: 2374649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	104	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A116410

Included Lab Sample IDs: 2374649

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

Reference Method: DEP SOP: NU-094-1

Run ID: A116411

Included Lab Sample IDs: 2374649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	98.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A116420

Included Lab Sample IDs: 2374654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	107	105	P/P	60 - 160
Sucralose	78.5	72.6	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A116422

Included Lab Sample IDs: 2374654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	102	95.6	P/P	60 - 160
Endothall	99.9	103	P/P	60 - 160
Glufosinate	94.1	95.6	P/P	60 - 160
Glyphosate	107	104	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A116429

Included Lab Sample IDs: 2374650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	96.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A116473

Included Lab Sample IDs: 2374654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	90.7	91.2	P/P	50 - 150
2,4,5-T	111	109	P/P	50 - 150
Acetaminophen	107	105	P/P	60 - 160
Acetamiprid	109	108	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A116473
Included Lab Sample IDs: 2374654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Afidopyropen	109	90.5	P/P	50 - 150
Bentazon	111	111	P/P	50 - 160
Benzovindiflupyr	110	109	P/P	50 - 150
Carbamazepine	111	110	P/P	60 - 150
Clothianidin	110	106	P/P	60 - 150
Dinotefuran	103	109	P/P	50 - 150
Diuron	118	120	P/P	60 - 160
Fenuron	109	106	P/P	60 - 150
Fluridone	114	111	P/P	60 - 160
Hydrocodone	104	103	P/P	60 - 150
Ibuprofen	108	87.3	P/P	50 - 160
Imazapyr	91.3	94.4	P/P	50 - 150
Imidacloprid	104	103	P/P	60 - 150
Linuron	108	119	P/P	60 - 150
Mandestrobin	106	108	P/P	50 - 150
MCPP	104	97.3	P/P	50 - 150
Naproxen	88.8	140	P/P	50 - 160
Primidone	98.4	101	P/P	60 - 150
Pyraclostrobin	109	109	P/P	60 - 150
Silvex	99.2	100	P/P	50 - 150
Thiamethoxam	98.7	102	P/P	50 - 150
Tolfenpyrad	105	106	P/P	60 - 150
Triclopyr	112	115	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A116504
Included Lab Sample IDs: 2374650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.5	95.0	P/P	90 - 110

Reference Method: EPA 120.1
Run ID: A116543
Included Lab Sample IDs: 2374649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Specific_Conductance	103	102	P/P	85 - 115

Reference Method: SM 2320 B-2011
Run ID: A116543
Included Lab Sample IDs: 2374649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.6	96.0	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A116543
Included Lab Sample IDs: 2374649

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A116546

Included Lab Sample IDs: 2374650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A116556

Included Lab Sample IDs: 2374655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.4	99.7	P/P	90 - 110
Magnesium	99.0	98.3	P/P	90 - 110
Potassium	98.2	97.9	P/P	90 - 110
Sodium	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A116577

Included Lab Sample IDs: 2374650

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116709

Included Lab Sample IDs: 2374650

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision	MS
							SMP	
DEP SOP: NU-094-1	Color (true)	99.7					3.46	
EPA 120.1	Specific_Conductance	102					0.394	
EPA 180.1 Rev. 2.0	Turbidity	101					8.99	
EPA 200.7 Rev. 4.4	Calcium	101	107	94.6				2.26
	Magnesium	98.2	99.9	96.0	97.4			2.69
	Potassium	94.7	101	97.0	98.9			3.16
	Sodium	99.6	103	100	102			2.06
EPA 300.0 Rev. 2.1	Chloride	98.5	99.1	96.0			0.182	
	Sulfate	97.9	99.7	94.7			0.227	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	100	105				4.00
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110						7.11
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	95.5	97.0				0.902
EPA 365.1 Rev. 2.0	Total-P	101	102	103				1.30
EPA 8321B	2,4-D	77.3	82.5	83.5				1.19
	2,4,5-T	78.5	82.2	84.3				2.56
	Acesulfame K	97.0	65.5	58.1				11.8
	Acetaminophen	103	98.7	102				3.18
	Acetamiprid	81.2	87.4	85.4				2.25
	Afidopyropen	60.1	70.9	72.9				2.76
	AMPA	90.7	78.4	77.8				0.815
	Bentazon	102	88.8	96.2				6.09
	Benzovindiflupyr	92.9	85.5	84.3				1.41
	Carbamazepine	95.3	89.1	90.5				1.56
	Clothianidin	106	98.6	98.7				0.0828
	Dinotefuran	105	97.8	97.3				0.464
	Diuron	92.2	78.1	80.2				2.62
	Endothall	101	107	106				0.813
	Fenuron	112	102	99.8				2.23
	Fluridone	99.2	91.0	90.2				0.911
	Glufosinate	96.9	97.2	97.3				0.0448
	Glyphosate	96.7	97.3	103				5.56
	Hydrocodone	105	93.5	95.4				2.02
	Ibuprofen	66.5	68.8	67.1				2.57
	Imazapyr	89.6	91.3	87.5				4.20
	Imidacloprid	114	116	109				6.24
	Linuron	84.8	78.3	82.3				4.90
	Mandestrobin	94.8	88.4	84.1				4.93
	MCPP	90.0	95.7	93.6				2.28
	Naproxen	63.5	84.8	96.4				12.8
	Primidone	103	92.1	89.5				2.92
	Pyraclostrobin	89.5	63.3	76.6				19.1
	Silvex	78.9	80.0	84.4				5.31
	Sucralose	94.9	83.2	101				18.4
	Thiamethoxam	101	96.9	96.4				0.476
	Tolfenpyrad	42.6	37.6	47.7				23.9
	Triclopyr	90.0	91.5	88.0				3.96
SM 2320 B-2011	Total Alkalinity	97.4					0.0861	
SM 2540 D-2015	TSS	95.2						
SM 4500-F- C-2011	Fluoride	102	101	99.7				0.966
SM 5310 B-2011	Organic Carbon	95.4	99.2	99.4				0.176

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2374649
EPA 120.1	Specific Conductivity in aqueous matrices (umhos/cm at 25 deg C).	2374649
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2374649
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2374655
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2374649
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2374649
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2374650
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2374650
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2374650
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2374650
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2374654
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2374649
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2374655
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2374649
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2374649
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2374650

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	12/13/2022			12/13/2022 14:43	Alexis Price	2374649
EPA 120.1	12/13/2022			12/17/2022 05:31	Dale L. Simmons	2374649
EPA 180.1 Rev. 2.0	12/13/2022			12/13/2022 14:47	Chandler E Cox	2374649
EPA 200.7 Rev. 4.4	12/13/2022	12/14/2022 11:50	George D Taylor	12/19/2022 20:26	Betina Topolski	2374655
EPA 300.0 Rev. 2.1	12/13/2022			12/17/2022 03:15	Anna M. Plaviak	2374649
EPA 350.1 Rev. 2.0	12/13/2022			12/20/2022 13:42	Judith K. Clark	2374650
EPA 351.2 Rev. 2.0	12/13/2022	12/15/2022 15:28	Judith K. Clark	12/16/2022 12:54	Samantha L Bates	2374650
EPA 353.2 Rev. 2.0	12/13/2022			12/14/2022 10:23	Beverly Y. Sanders	2374650
EPA 365.1 Rev. 2.0	12/13/2022	12/29/2022 14:13	Adam P Silver	01/03/2023 12:46	James L Waggeberby	2374650
EPA 8321B	12/13/2022	12/13/2022 13:15	Manjita Shrestha	12/13/2022 16:16	Manjita Shrestha	2374654
	12/13/2022	12/13/2022 13:15	Manjita Shrestha	12/14/2022 00:38	Manjita Shrestha	2374654
	12/13/2022	12/14/2022 09:30	June Rhew	12/15/2022 08:15	Juyoung Kim	2374654
SM 2320 B-2011	12/13/2022			12/17/2022 05:31	Dale L. Simmons	2374649
SM 2340 B-2011	12/13/2022			12/19/2022 20:26	Betina Topolski	2374655
SM 2540 D-2015	12/13/2022			12/15/2022 16:01	Yijie Li	2374649
SM 4500-F- C-2011	12/13/2022			12/17/2022 05:31	Dale L. Simmons	2374649
SM 5310 B-2011	12/13/2022			12/16/2022 21:58	Elise M. Gillis	2374650