

Chemical Analysis Report

WQAP-2022-11-01-02

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

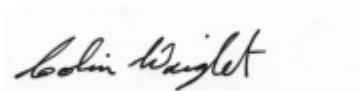
Event Description: **Hurricane Ian Post Storm Monitoring - SE ROC**
Request ID: **RQ-2022-10-31-27**
Customer: **WQAP**
Project ID: **HURR-IAN**

Send Reports to:
FL Dept. of Environmental Protection
2199 South Rock Rd.
Fort Pierce, FL 34945
Attn: Jordan Skaggs

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Certified by: Colin Wright, Program Administrator

Date Certified: 10-NOV-2022 10:00

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink rectangular background.

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: 10/31/2022 11:00

Field ID: 59629

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2366207	DEP SOP: NU-094-1	Color (true)	170		PCU	P421731	
	EPA 120.1	Specific_Conductance	120	A	umhos/cm	P421898	
	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P421733	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P421911	
		Sulfate	4.5	A	mg SO4/L	P421912	
	SM 2320 B-2011	Total Alkalinity	23	A	mg CaCO3/L	P421901	
	SM 2540 D-2015	TSS	5	I	mg/L	P421963	
	SM 4500-F- C-2011	Fluoride	0.073	I	mg F/L	P421904	
2366208	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P421910	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P421877	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P421835	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P421710	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P421998	
2366212	EPA 8321B	2,4-D	0.0052	I	ug/L	P421744	
		Acesulfame K	0.10	U	ug/L	P421714	
		2,4,5-T	0.0040	U	ug/L	P421744	
		AMPA	0.10	U	ug/L	P421714	
		Acetaminophen	0.0080	U	ug/L	P421744	
		Acetamiprid	0.0020	U	ug/L	P421744	
		Endothall	0.25	U	ug/L	P421714	MS
		Glufosinate	0.10	U	ug/L	P421714	
		Glyphosate	0.10	U	ug/L	P421714	
		Afidopyropen	0.0020	U	ug/L	P421744	
		Bentazon	0.016		ug/L	P421744	
		Sucralose	0.50		ug/L	P421714	
		Benzovindiflupyr	0.0020	U	ug/L	P421744	
		Carbamazepine	8.0E-04	U	ug/L	P421744	
		Clothianidin	0.0020	U	ug/L	P421744	
		Dinotefuran	0.0020	U	ug/L	P421744	
		Diuron	0.0020	U	ug/L	P421744	
		Fenuron	0.032	U	ug/L	P421744	
		Fluridone	0.011		ug/L	P421744	
		Imazapyr	0.073		ug/L	P421744	
		Hydrocodone	0.0020	U	ug/L	P421744	
		Ibuprofen	0.20	U	ug/L	P421744	
		Imidacloprid	0.0085		ug/L	P421744	
		Linuron	0.0040	U	ug/L	P421744	
		Mandestrobin	0.0020	U	ug/L	P421744	
		MCPP	0.0040	U	ug/L	P421744	
		Naproxen	0.0080	U	ug/L	P421744	
		Primidone	0.0040	U	ug/L	P421744	
		Pyraclostrobin	0.0020	U	ug/L	P421744	
		Silvex	0.0040	U	ug/L	P421744	
		Thiamethoxam	0.0020	U	ug/L	P421744	

Field ID: 59629

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2366212	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P421744	
		Triclopyr	0.0040	U	ug/L	P421744	
2366213	EPA 200.7 Rev. 4.4	Calcium	10.4		mg/L	P421757	
		Magnesium	2.83		mg/L	P421757	
		Potassium	2.8		mg/L	P421757	
		Sodium	11.0		mg/L	P421757	
	SM 2340 B-2011	Hardness	37.7		mg/L	P421757	

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: P421731

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 120.1
Batch ID: P421898

Component	Result	Code	Units
Specific_Conductance	2.0	U	umhos/cm

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421733

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421757

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: P421911

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421912

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421910

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421877

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421835

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: P421710

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

Reference Method: EPA 8321B
Batch ID: P421714

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: P421744

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: P421901

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: P421963

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P421904

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P421998

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: P421731

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	90 - 110

Reference Method: EPA 120.1
Batch ID: P421898

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421733

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421757

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	109		P	80 - 120
Magnesium	107		P	80 - 120
Potassium	106		P	80 - 120
Sodium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421911

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421912

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421910

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421877

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421835

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P421710

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

Reference Method: EPA 8321B

Batch ID: P421714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	90.2		P	40 - 150
AMPA	116		P	40 - 150
Endothall	101		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	103		P	40 - 150
Sucralose	83.0		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P421744

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.0		P	40 - 150
2,4,5-T	65.3		P	40 - 150
Acetaminophen	98.6		P	30 - 150
Acetamiprid	86.4		P	40 - 150
Afidopyropen	70.5		P	30 - 150
Bentazon	104		P	30 - 150
Benzovindiflupyr	89.0		P	40 - 150
Carbamazepine	93.0		P	40 - 150
Clothianidin	108		P	40 - 150
Dinotefuran	110		P	40 - 150
Diuron	84.6		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	93.7		P	40 - 150
Hydrocodone	103		P	40 - 150
Ibuprofen	73.8		P	40 - 150
Imazapyr	84.4		P	40 - 150
Imidacloprid	102		P	40 - 150
Linuron	98.5		P	40 - 150
Mandestrobin	90.3		P	40 - 150
MCPP	84.7		P	40 - 150
Naproxen	56.9		P	40 - 150
Primidone	99.1		P	40 - 150
Pyraclostrobin	79.2		P	40 - 150
Silvex	62.1		P	40 - 150
Thiamethoxam	102		P	40 - 150
Tolfenpyrad	41.6		P	30 - 150
Triclopyr	61.4		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P421901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P421963

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	92.7		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P421904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P421998

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365548	Calcium	102		P	80 - 120
2365548	Magnesium	100		P	80 - 120
2365548	Potassium	94.3		P	80 - 120
2365548	Sodium	102		P	80 - 120
2366226	Calcium	101	94.3	P/P	80 - 120
2366226	Magnesium	100	95.4	P/P	80 - 120
2366226	Potassium	97.7	93.9	P/P	80 - 120
2366226	Sodium	98.1		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366207	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366207	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2364491	Ammonia-N	97.0	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365527	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2365496	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P421714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366047	Acesulfame K	76.5	77.7	P/P	40 - 150
2366047	AMPA	85.9	92.7	P/P	40 - 150
2366047	Endothall	193	193	F/F	40 - 150
2366047	Glufosinate	81.1	90.0	P/P	40 - 150
2366047	Glyphosate	85.5	95.0	P/P	40 - 150
2366047	Sucralose	92.2	94.6	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P421744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366175	2,4-D	81.1	106	P/P	40 - 150
2366175	2,4,5-T	66.7	79.3	P/P	40 - 150
2366175	Acetaminophen	106	108	P/P	30 - 150
2366175	Acetamiprid	85.2	105	P/P	40 - 150
2366175	Afidopyropen	67.8	78.2	P/P	30 - 150
2366175	Bentazon	103	115	P/P	30 - 150
2366175	Benzovindiflupyr	102	106	P/P	40 - 150
2366175	Carbamazepine	110	107	P/P	40 - 150
2366175	Clothianidin	118	140	P/P	40 - 150
2366175	Dinotefuran	121	131	P/P	40 - 150
2366175	Diuron	91.2	94.9	P/P	40 - 150
2366175	Fenuron	114	127	P/P	40 - 150
2366175	Fluridone	113	113	P/P	40 - 150
2366175	Hydrocodone	114	132	P/P	40 - 150
2366175	Ibuprofen	75.2	93.0	P/P	40 - 150
2366175	Imazapyr	102	115	P/P	40 - 150
2366175	Imidacloprid	112	118	P/P	40 - 150
2366175	Linuron	97.8	94.9	P/P	40 - 150
2366175	Mandestrobin	94.4	104	P/P	40 - 150
2366175	MCCP	95.6	111	P/P	40 - 150
2366175	Naproxen	80.3	79.0	P/P	40 - 150
2366175	Primidone	98.9	119	P/P	40 - 150
2366175	Pyraclostrobin	95.8	98.8	P/P	40 - 150
2366175	Silvex	66.8	75.0	P/P	40 - 150
2366175	Thiamethoxam	118	126	P/P	40 - 150
2366175	Tolfenpyrad	54.8	51.4	P/P	30 - 150
2366175	Triclopyr	66.7	80.8	P/P	40 - 150

Reference Method: SM 4500-F- C-2011

Batch ID: P421904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366207	Fluoride	100	98.3	P/P	94 - 104

Reference Method: SM 5310 B-2011

Batch ID: P421998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366238	Organic Carbon	97.8	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P421731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366195	Color (true)	0.362	Sample	P	0 - 20

Reference Method: EPA 120.1
Batch ID: P421898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366207	Specific_Conductance	1.53	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366195	Turbidity	17.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366226	Calcium	3.78	Spike	P	0 - 20
2366226	Magnesium	4.17	Spike	P	0 - 20
2366226	Potassium	3.15	Spike	P	0 - 20
2366226	Sodium	3.30	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366207	Chloride	4.09	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P421912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366207	Sulfate	4.83	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2364491	Ammonia-N	1.82	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366203	Kjeldahl Nitrogen	3.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365527	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2365496	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P421714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366047	Acesulfame K	1.55	Spike	P	0 - 30
2366047	AMPA	6.57	Spike	P	0 - 30
2366047	Endothall	0.162	Spike	P	0 - 30
2366047	Glufosinate	10.4	Spike	P	0 - 30
2366047	Glyphosate	8.88	Spike	P	0 - 30
2366047	Sucralose	2.44	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P421744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366175	2,4-D	26.5	Spike	P	0 - 30
2366175	2,4,5-T	17.2	Spike	P	0 - 30
2366175	Acetaminophen	2.11	Spike	P	0 - 30
2366175	Acetamiprid	20.6	Spike	P	0 - 30
2366175	Afidopyropen	14.3	Spike	P	0 - 30
2366175	Bentazon	11.3	Spike	P	0 - 30
2366175	Benzovindiflupyr	3.60	Spike	P	0 - 30
2366175	Carbamazepine	2.56	Spike	P	0 - 30
2366175	Clothianidin	16.9	Spike	P	0 - 30
2366175	Dinotefuran	7.94	Spike	P	0 - 30
2366175	Diuron	4.05	Spike	P	0 - 30
2366175	Fenuron	11.0	Spike	P	0 - 30
2366175	Fluridone	0.401	Spike	P	0 - 30
2366175	Hydrocodone	15.2	Spike	P	0 - 30
2366175	Ibuprofen	21.2	Spike	P	0 - 30
2366175	Imazapyr	11.9	Spike	P	0 - 30
2366175	Imidacloprid	5.22	Spike	P	0 - 30
2366175	Linuron	2.97	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P421744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366175	Mandestrobin	9.28	Spike	P	0 - 30
2366175	MCP	14.8	Spike	P	0 - 30
2366175	Naproxen	1.64	Spike	P	0 - 30
2366175	Primidone	18.3	Spike	P	0 - 30
2366175	Pyraclostrobin	2.98	Spike	P	0 - 30
2366175	Silvex	11.6	Spike	P	0 - 30
2366175	Thiamethoxam	6.73	Spike	P	0 - 30
2366175	Tolfenpyrad	6.48	Spike	P	0 - 30
2366175	Triclopyr	19.1	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P421901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366207	Total Alkalinity	0.297	Sample	P	0 - 3.8

Reference Method: SM 4500-F- C-2011
Batch ID: P421904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366207	Fluoride	1.48	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P421998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366238	Organic Carbon	0.593	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2366212

Field Sample ID: 59629

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	115	P	30 - 160
EPA 8321B	Acetaminophen-d4	150	P	30 - 160
EPA 8321B	Carbamazepine-d10	81.4	P	30 - 160
EPA 8321B	Diuron-d6	62.9	P	30 - 160
EPA 8321B	Endothall-d6	140	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	109	P	30 - 160
EPA 8321B	Ibuprofen-d3	69.4	P	30 - 160
EPA 8321B	Primidone-d5	122	P	30 - 160
EPA 8321B	Sucralose-d6	83.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A115658

Included Lab Sample IDs: 2366207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A115659

Included Lab Sample IDs: 2366207

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A115675

Included Lab Sample IDs: 2366207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	97.4	P/P	90 - 110
Sulfate	104	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115679

Included Lab Sample IDs: 2366208

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

Reference Method: EPA 8321B

Run ID: A115696

Included Lab Sample IDs: 2366212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	103	105	P/P	60 - 160
Endothall	96.2	107	P/P	60 - 160
Glufosinate	88.4	98.6	P/P	60 - 160
Glyphosate	101	100	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A115702

Included Lab Sample IDs: 2366212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	99.3	106	P/P	50 - 150
2,4,5-T	101	97.6	P/P	50 - 150
Acetaminophen	109	124	P/P	60 - 160
Acetamiprid	118	114	P/P	50 - 150
Afidopyropen	107	124	P/P	50 - 150
Bentazon	115	117	P/P	50 - 160
Benzovindiflupyr	117	119	P/P	50 - 150
Carbamazepine	118	116	P/P	60 - 150
Clothianidin	126	125	P/P	60 - 150
Dinotefuran	124	140	P/P	50 - 150
Diuron	104	108	P/P	60 - 160
Fenuron	113	109	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A115702
Included Lab Sample IDs: 2366212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	109	114	P/P	60 - 160
Hydrocodone	114	118	P/P	60 - 150
Ibuprofen	77.7	98.7	P/P	50 - 160
Imazapyr	107	114	P/P	50 - 150
Imidacloprid	104	108	P/P	60 - 150
Linuron	120	107	P/P	60 - 150
Mandestrobin	106	109	P/P	50 - 150
MCP	99.3	107	P/P	50 - 150
Naproxen	104	85.2	P/P	50 - 160
Primidone	115	107	P/P	60 - 150
Pyraclostrobin	111	114	P/P	60 - 150
Silvex	93.8	89.1	P/P	50 - 150
Thiamethoxam	113	115	P/P	50 - 150
Tolfenpyrad	116	117	P/P	60 - 150
Triclopyr	98.4	101	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A115713
Included Lab Sample IDs: 2366208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	97.5	P/P	90 - 110

Reference Method: EPA 120.1
Run ID: A115743
Included Lab Sample IDs: 2366207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Specific_Conductance	101	102	P/P	85 - 115

Reference Method: SM 2320 B-2011
Run ID: A115743
Included Lab Sample IDs: 2366207

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.1	95.1	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A115743
Included Lab Sample IDs: 2366207

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A115748
Included Lab Sample IDs: 2366208

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A115775

Included Lab Sample IDs: 2366208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	98.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A115780

Included Lab Sample IDs: 2366213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	105	94.9	P/P	90 - 110
Magnesium	104	92.5	P/P	90 - 110
Potassium	104	92.8	P/P	90 - 110
Sodium	106	95.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A115783

Included Lab Sample IDs: 2366212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	86.9	87.9	P/P	60 - 160
Sucralose	80.8	80.9	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115808

Included Lab Sample IDs: 2366208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.0	92.4	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	
						LCS	MS
DEP SOP: NU-094-1	Color (true)	100				0.362	
EPA 120.1	Specific_Conductance	99.7				1.53	
EPA 180.1 Rev. 2.0	Turbidity	99.6				17.0	
EPA 200.7 Rev. 4.4	Calcium	109	102	101	94.3		3.78
	Magnesium	107	100	100	95.4		4.17
	Potassium	106	94.3	97.7	93.9		3.15
	Sodium	105	102	98.1			3.30
EPA 300.0 Rev. 2.1	Chloride	98.9	103			4.09	
	Sulfate	103	102			4.83	
EPA 350.1 Rev. 2.0	Ammonia-N	102	97.0	99.0			1.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					3.33
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.5	100			0.501
EPA 365.1 Rev. 2.0	Total-P	101	103	105			1.02
EPA 8321B	2,4-D	78.0	81.1	106			26.5
	2,4,5-T	65.3	66.7	79.3			17.2
	Acesulfame K	90.2	76.5	77.7			1.55
	Acetaminophen	98.6	106	108			2.11
	Acetamiprid	86.4	85.2	105			20.6
	Afidopyropen	70.5	67.8	78.2			14.3
	AMPA	116	85.9	92.7			6.57
	Bentazon	104	103	115			11.3
	Benzovindiflupyr	89.0	102	106			3.60
	Carbamazepine	93.0	110	107			2.56
	Clothianidin	108	118	140			16.9
	Dinotefuran	110	121	131			7.94
	Diuron	84.6	91.2	94.9			4.05
	Endothall	101	193	193			0.162
	Fenuron	110	114	127			11.0
	Fluridone	93.7	113	113			0.401
	Glufosinate	104	81.1	90.0			10.4
	Glyphosate	103	85.5	95.0			8.88
	Hydrocodone	103	114	132			15.2
	Ibuprofen	73.8	75.2	93.0			21.2
	Imazapyr	84.4	102	115			11.9
	Imidacloprid	102	112	118			5.22
	Linuron	98.5	97.8	94.9			2.97
	Mandestrobin	90.3	94.4	104			9.28
	MCPPP	84.7	95.6	111			14.8
	Naproxen	56.9	80.3	79.0			1.64
	Primidone	99.1	98.9	119			18.3
	Pyraclostrobin	79.2	95.8	98.8			2.98
	Silvex	62.1	66.8	75.0			11.6
	Sucralose	83.0	92.2	94.6			2.44
	Thiamethoxam	102	118	126			6.73
	Tolfenpyrad	41.6	54.8	51.4			6.48
	Triclopyr	61.4	66.7	80.8			19.1
SM 2320 B-2011	Total Alkalinity	98.8				0.297	
SM 2540 D-2015	TSS	92.7					
SM 4500-F- C-2011	Fluoride	99.6	100	98.3			1.48
SM 5310 B-2011	Organic Carbon	96.3	97.8	98.6			0.593

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)	2366207
EPA 120.1	Specific Conductivity in aqueous matrices (umhos/cm at 25 deg C).	2366207
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2366207
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2366213
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2366207
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2366207
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2366208
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2366208
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2366208
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2366208
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2366212
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2366207
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2366213
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2366207
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2366207
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2366208

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	11/01/2022			11/01/2022 14:17	Chandler E Cox	2366207
EPA 120.1	11/01/2022			11/03/2022 23:35	Dale L. Simmons	2366207
EPA 180.1 Rev. 2.0	11/01/2022			11/01/2022 14:33	Anna M. Plaviak	2366207
EPA 200.7 Rev. 4.4	11/01/2022	11/02/2022 11:30	George D Taylor	11/06/2022 23:35	McKinley C Carter	2366213
EPA 300.0 Rev. 2.1	11/01/2022			11/04/2022 11:21	Anna M. Plaviak	2366207
EPA 350.1 Rev. 2.0	11/01/2022			11/04/2022 11:57	Ping Hua	2366208
EPA 351.2 Rev. 2.0	11/01/2022	11/04/2022 10:30	Simonne.V. Calhoun	11/08/2022 13:15	Samantha L Bates	2366208
EPA 353.2 Rev. 2.0	11/01/2022			11/03/2022 09:33	Beverly Y. Sanders	2366208
EPA 365.1 Rev. 2.0	11/01/2022	11/01/2022 14:45	Simonne.V. Calhoun	11/02/2022 09:50	James L Waggeberby	2366208
EPA 8321B	11/01/2022	11/02/2022 09:30	June Rhew	11/02/2022 18:47	Juyoung Kim	2366212
	11/01/2022	11/02/2022 12:00	Umesh Chiluwai	11/02/2022 15:09	Umesh Chiluwai	2366212
	11/01/2022	11/02/2022 12:00	Umesh Chiluwai	11/03/2022 07:10	Umesh Chiluwai	2366212
SM 2320 B-2011	11/01/2022			11/03/2022 23:35	Dale L. Simmons	2366207
SM 2340 B-2011	11/01/2022			11/06/2022 23:35	McKinley C Carter	2366213
SM 2540 D-2015	11/01/2022			11/02/2022 15:18	Yijie Li	2366207
SM 4500-F- C-2011	11/01/2022			11/03/2022 23:24	Dale L. Simmons	2366207
SM 5310 B-2011	11/01/2022			11/05/2022 02:37	Khloe J Berg	2366208