

Chemical Analysis Report

WQAP-2020-03-19-03

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

Event Description: **Rose X2 / Strickland X2 / Turnbull**
Request ID: **RQ-2020-03-16-26**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 09-APR-2020 09:34



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: Turnbull Bay @ 640m S of Divito Park

Collection Date/Time: 03/18/2020 12:03

Field ID: G5CE0100

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2166886	EPA 180.1 Rev. 2.0	Turbidity	7.1	A	NTU	P381001	
	EPA 300.0 Rev. 2.1	Bromide	61		mg Br/L	P381201	
	SM 2320 B-2011	Total Alkalinity	134		mg CaCO3/L	P381413	
	SM 2540 D-2011	TSS	11	A	mg/L	P381255	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P381452	
2166887	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P381234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P381281	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381311	
	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P381312	
	SM 5310 B-2011	Organic Carbon	4.7		mg C/L	P381091	
2166888	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P381027	
2166893	EPA 200.7 Rev. 4.4	Iron	350	I	ug/L	P380962	
		Manganese	15	I	ug/L	P380962	
		Zinc	20	U	ug/L	P380962	
	EPA 200.8 Rev. 5.4	Aluminum	418		ug/L	P380962	
		Antimony	0.50	U	ug/L	P380962	
		Arsenic	1.7	I	ug/L	P380962	
		Cadmium	0.20	U	ug/L	P380962	
		Chromium	1.6	U	ug/L	P380962	
		Copper	1.6	U	ug/L	P380962	
		Lead	2.0	U	ug/L	P380962	
		Nickel	2.0	U	ug/L	P380962	
		Selenium	2.0	U	ug/L	P380962	
		Silver	0.10	U	ug/L	P380962	
		Thallium	1.0	U	ug/L	P380962	
		Hardness	5.91E+03		mg/L	P380962	
	SM 2340B						

Sample Location: Rose Bay @ 125m NE of Boat Ramp

Collection Date/Time: 03/18/2020 13:05

Field ID: G5CE0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2166892	EPA 8321B	2,4-D	0.012		ug/L	P381156	
		Acesulfame K**	0.10	U	ug/L	P380955	
		AMPA**	0.10	UJ	ug/L	P380955	SUR
		Sucralose**	0.18		ug/L	P380955	
		Acetaminophen**	0.0080	U	ug/L	P381156	
		Acetamiprid**	0.0020	U	ug/L	P381156	
		Endothall**	0.25	U	ug/L	P380955	
		Glufosinate**	0.10	UJ	ug/L	P380955	SUR
		Glyphosate**	0.10	UJ	ug/L	P380955	SUR
		Afidopyropen**	0.0020	UJ	ug/L	P381156	
		Bentazon	0.018		ug/L	P381156	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P381156	
		Carbamazepine**	0.0013	I	ug/L	P381156	
		Clothianidin**	0.0020	U	ug/L	P381156	
		Dinotefuran**	0.0020	U	ug/L	P381156	
		Diuron	0.0020	I	ug/L	P381156	
		Fenuron	0.016	U	ug/L	P381156	
		Fluridone**	0.0024	I	ug/L	P381156	
		Imazapyr**	0.0080	I	ug/L	P381156	
		Hydrocodone**	0.0020	U	ug/L	P381156	
		Ibuprofen**	0.020	U	ug/L	P381156	
		Imidacloprid	0.0020	U	ug/L	P381156	
		Linuron	0.0040	U	ug/L	P381156	
		Mandestrobin**	0.0020	UJ	ug/L	P381156	
		MCPP	0.0020	U	ug/L	P381156	
		Naproxen**	0.0080	U	ug/L	P381156	
		Primidone**	0.0040	U	ug/L	P381156	
		Pyraclostrobin**	0.0020	U	ug/L	P381156	
		Thiamethoxam**	0.0020	U	ug/L	P381156	
		Tolfenpyrad**	0.0020	U	ug/L	P381156	
		Triclopyr**	0.0040	U	ug/L	P381156	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis.

EPA 8321B: Results confirmed in re-extraction. Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381001

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380962

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380962

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381201

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381281

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381311

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: P381312

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381027

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P380955

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: P381156

Component	Result	Code	Units
2,4-D	0.0020	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	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	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	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	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: P381413

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

Reference Method: SM 2540 D-2011
Batch ID: P381255

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381452

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P381091

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380962

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	98.6		P	85 - 115
Manganese	103		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380962

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	97.3		P	85 - 115
Arsenic	99.4		P	85 - 115
Cadmium	106		P	85 - 115
Chromium	101		P	85 - 115
Copper	93.3		P	85 - 115
Lead	103		P	85 - 115
Nickel	98.3		P	85 - 115
Selenium	93.5		P	85 - 115
Silver	98.2		P	85 - 115
Thallium	107		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381201

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381281

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381311

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381312

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P381027

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

Reference Method: EPA 8321B
 Batch ID: P380955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	111		P	40 - 150
AMPA	99.1		P	40 - 150
Endothall	85.9		P	40 - 150
Glufosinate	118		P	40 - 150
Glyphosate	125		P	40 - 140
Sucralose	99.0		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P381156

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	115		P	30 - 160
Acetaminophen	86.2		P	30 - 160
Acetamiprid	98.6		P	30 - 160
Afidopyropen	110		P	30 - 160
Bentazon	87.3		P	30 - 160
Benzovindiflupyr	82.6		P	30 - 160
Carbamazepine	118		P	30 - 160
Clothianidin	106		P	30 - 160
Dinotefuran	94.5		P	30 - 160
Diuron	105		P	30 - 160
Fenuron	110		P	30 - 160
Fluridone	88.9		P	30 - 160
Hydrocodone	94.4		P	30 - 160
Ibuprofen	89.9		P	30 - 160
Imazapyr	87.2		P	30 - 160
Imidacloprid	107		P	30 - 160
Linuron	80.1		P	30 - 160
Mandestrobin	89.2		P	30 - 160
MCPP	137		P	30 - 160
Naproxen	71.5		P	30 - 160
Primidone	103		P	30 - 160
Pyraclostrobin	76.9		P	30 - 160
Thiamethoxam	104		P	30 - 160
Tolfenpyrad	51.8		P	30 - 160
Triclopyr	104		P	30 - 160

Reference Method: SM 2320 B-2011
 Batch ID: P381413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P381452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P381091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166312	Iron	99.9	101	P/P	70 - 130
2166312	Manganese	105	104	P/P	70 - 130
2166312	Zinc	104	103	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166312	Aluminum	97.1	98.9	P/P	70 - 130
2166312	Antimony	99.5	105	P/P	70 - 130
2166312	Arsenic	103	105	P/P	70 - 130
2166312	Cadmium	93.1	111	P/P	70 - 130
2166312	Chromium	101	102	P/P	70 - 130
2166312	Copper	88.9	89.3	P/P	70 - 130
2166312	Lead	103	103	P/P	70 - 130
2166312	Nickel	98.5	99.1	P/P	70 - 130
2166312	Selenium	95.5	101	P/P	70 - 130
2166312	Silver	98.5	98.8	P/P	70 - 130
2166312	Thallium	105	106	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166933	Bromide	103	101	P/P	90 - 110
2166937	Bromide	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166887	Ammonia-N	103	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166947	Kjeldahl Nitrogen	94.7	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166878	NO2NO3-N	100	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166272	Total-P	106	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P381027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166888	O-Phosphate-P	103	105	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P380955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166972	Acesulfame K	140	139	P/P	40 - 150
2166972	AMPA	103	94.4	P/P	40 - 150
2166972	Endothall	101	97.2	P/P	40 - 150
2166972	Glufosinate	114	106	P/P	40 - 150
2166972	Glyphosate	113	117	P/P	40 - 140
2166972	Sucralose	87.8	92.5	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P381156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166972	2,4-D	128	133	P/P	30 - 160
2166972	Acetaminophen	103	107	P/P	30 - 160
2166972	Acetamiprid	105	116	P/P	30 - 160
2166972	Afidopyropen	110	114	P/P	30 - 160
2166972	Bentazon	64.4	64.4	P/P	30 - 160
2166972	Benzovindiflupyr	83.4	77.5	P/P	30 - 160
2166972	Carbamazepine	105	102	P/P	30 - 160
2166972	Clothianidin	121	125	P/P	30 - 160
2166972	Dinotefuran	140	123	P/P	30 - 160
2166972	Diuron	96.7	97.9	P/P	30 - 160
2166972	Fenuron	81.4	85.4	P/P	30 - 160
2166972	Fluridone	88.0	86.0	P/P	30 - 160
2166972	Hydrocodone	122	118	P/P	30 - 160
2166972	Ibuprofen	86.1	78.5	P/P	30 - 160
2166972	Imazapyr	121	119	P/P	30 - 160
2166972	Imidacloprid	159	159	P/P	30 - 160
2166972	Linuron	78.2	77.0	P/P	30 - 160
2166972	Mandestrobin	86.5	86.6	P/P	30 - 160
2166972	MCP	143	147	P/P	30 - 160
2166972	Naproxen	73.9	89.0	P/P	30 - 160
2166972	Primidone	120	110	P/P	30 - 160
2166972	Pyraclostrobin	87.9	85.6	P/P	30 - 160
2166972	Thiamethoxam	157	160	P/P	30 - 160
2166972	Tolfenpyrad	55.1	56.8	P/P	30 - 160
2166972	Triclopyr	112	117	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
 Batch ID: P381452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2165407	Fluoride	98.4	101	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P381091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166887	Organic Carbon	99.8	96.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166886	Turbidity	2.81	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P380962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166312	Iron	0.659	Spike	P	0 - 20
2166312	Manganese	0.872	Spike	P	0 - 20
2166312	Zinc	0.657	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P380962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166312	Aluminum	1.73	Spike	P	0 - 20
2166312	Antimony	4.93	Spike	P	0 - 20
2166312	Arsenic	2.21	Spike	P	0 - 20
2166312	Cadmium	17.4	Spike	P	0 - 20
2166312	Chromium	1.37	Spike	P	0 - 20
2166312	Copper	0.410	Spike	P	0 - 20
2166312	Lead	0.0818	Spike	P	0 - 20
2166312	Nickel	0.664	Spike	P	0 - 20
2166312	Selenium	5.26	Spike	P	0 - 20
2166312	Silver	0.275	Spike	P	0 - 20
2166312	Thallium	0.878	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166933	Bromide	0.919	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166887	Ammonia-N	2.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166947	Kjeldahl Nitrogen	0.679	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166878	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166272	Total-P	0.0193	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166888	O-Phosphate-P	1.62	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P380955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166972	Acesulfame K	1.00	Spike	P	0 - 30
2166972	AMPA	9.02	Spike	P	0 - 30
2166972	Endothall	4.27	Spike	P	0 - 30
2166972	Glufosinate	6.73	Spike	P	0 - 30
2166972	Glyphosate	3.24	Spike	P	0 - 30
2166972	Sucralose	5.24	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P381156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166972	2,4-D	3.67	Spike	P	0 - 30
2166972	Acetaminophen	4.10	Spike	P	0 - 30
2166972	Acetamiprid	9.98	Spike	P	0 - 30
2166972	Afidopyropen	3.77	Spike	P	0 - 30
2166972	Bentazon	0.0481	Spike	P	0 - 30
2166972	Benzovindiflupyr	7.35	Spike	P	0 - 30
2166972	Carbamazepine	3.35	Spike	P	0 - 30
2166972	Clothianidin	3.79	Spike	P	0 - 30
2166972	Dinotefuran	12.8	Spike	P	0 - 30
2166972	Diuron	1.20	Spike	P	0 - 30
2166972	Fenuron	4.84	Spike	P	0 - 30
2166972	Fluridone	2.35	Spike	P	0 - 30
2166972	Hydrocodone	2.96	Spike	P	0 - 30
2166972	Ibuprofen	9.28	Spike	P	0 - 30
2166972	Imazapyr	2.17	Spike	P	0 - 30
2166972	Imidacloprid	0.210	Spike	P	0 - 30
2166972	Linuron	1.58	Spike	P	0 - 30
2166972	Mandestrobin	0.120	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P381156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166972	MCP	2.51	Spike	P	0 - 30
2166972	Naproxen	18.6	Spike	P	0 - 30
2166972	Primidone	8.45	Spike	P	0 - 30
2166972	Pyraclostrobin	2.56	Spike	P	0 - 30
2166972	Thiamethoxam	1.78	Spike	P	0 - 30
2166972	Tolfenpyrad	2.91	Spike	P	0 - 30
2166972	Triclopyr	4.17	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
 Batch ID: P381413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166937	Total Alkalinity	0.0452	Sample	P	0 - 3.3

Reference Method: SM 2540 D-2011
 Batch ID: P381255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166886	TSS	3.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P381452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2165407	Fluoride	1.47	Spike	P	0 - 2.0

Reference Method: SM 5310 B-2011
 Batch ID: P381091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166887	Organic Carbon	2.82	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2166892
Field Sample ID: G5CE0073

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	113	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160
EPA 8321B	Diuron-d6	115	P	30 - 160
EPA 8321B	Endothall-d6	153	P	30 - 160
EPA 8321B	Endothall-d6	153	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	0.0	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	0.0	F	30 - 160
EPA 8321B	Ibuprofen-d3	80.9	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	59.3	P	30 - 200
EPA 8321B	Sucralose-d6	59.3	P	30 - 200

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98316

Included Lab Sample IDs: 2166886

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98329

Included Lab Sample IDs: 2166888

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98352

Included Lab Sample IDs: 2166892

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	120	125	P/P	60 - 160
Endothall	106	106	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98353

Included Lab Sample IDs: 2166893

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	101	P/P	90 - 110
Chromium	99.3	99.2	P/P	90 - 110
Copper	90.3	90.4	P/P	90 - 110
Lead	102	102	P/P	90 - 110
Nickel	99.7	97.6	P/P	90 - 110
Thallium	98.1	96.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98362

Included Lab Sample IDs: 2166892

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	119	108	P/P	40 - 200
Glufosinate	126	118	P/P	40 - 200
Glyphosate	140	130	P/P	40 - 200

Reference Method: SM 5310 B-2011

Run ID: A98371

Included Lab Sample IDs: 2166887

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	93.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98406

Included Lab Sample IDs: 2166886

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98413

Included Lab Sample IDs: 2166887

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98444

Included Lab Sample IDs: 2166887

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98451

Included Lab Sample IDs: 2166887

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	90.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98467

Included Lab Sample IDs: 2166893

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	94.8	95.2	P/P	90 - 110
Manganese	96.9	96.4	P/P	90 - 110
Zinc	95.0	95.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98469

Included Lab Sample IDs: 2166893

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	98.6	99.4	P/P	90 - 110
Arsenic	101	101	P/P	90 - 110
Cadmium	100	100	P/P	90 - 110
Selenium	102	102	P/P	90 - 110
Silver	98.9	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98480

Included Lab Sample IDs: 2166887

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

Reference Method: EPA 8321B

Run ID: A98487

Included Lab Sample IDs: 2166892

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	82.5	95.0	P/P	40 - 200

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A98490

Included Lab Sample IDs: 2166886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A98495

Included Lab Sample IDs: 2166886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98518

Included Lab Sample IDs: 2166892

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.8	98.0	P/P	50 - 150
Acetaminophen	103	99.4	P/P	60 - 160
Acetamiprid	107	106	P/P	50 - 150
Afidopyropen	109	99.7	P/P	50 - 150
Bentazon	109	116	P/P	50 - 160
Benzovindiflupyr	104	106	P/P	50 - 150
Carbamazepine	104	104	P/P	60 - 150
Clothianidin	103	103	P/P	60 - 150
Dinotefuran	103	106	P/P	50 - 150
Diuron	113	109	P/P	60 - 150
Fenuron	109	112	P/P	60 - 150
Fluridone	111	109	P/P	60 - 160
Hydrocodone	112	113	P/P	60 - 150
Ibuprofen	85.2	86.5	P/P	50 - 160
Imazapyr	107	93.1	P/P	50 - 150
Imidacloprid	98.2	103	P/P	60 - 150
Linuron	101	105	P/P	60 - 150
Mandestrobin	102	101	P/P	50 - 150
MCPP	104	102	P/P	50 - 150
Naproxen	78.8	89.8	P/P	50 - 160
Primidone	99.5	105	P/P	60 - 150
Pyraclostrobin	107	103	P/P	60 - 150
Thiamethoxam	105	110	P/P	50 - 150
Tolfenpyrad	99.0	102	P/P	60 - 150
Triclopyr	101	103	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
EPA 180.1 Rev. 2.0	Turbidity						2.81	
EPA 200.7 Rev. 4.4	Iron	98.6		99.9	101			0.659
	Manganese	103		105	104			0.872
	Zinc	104		104	103			0.657
EPA 200.8 Rev. 5.4	Aluminum	100		97.1	98.9			1.73
	Antimony	97.3		99.5	105			4.93
	Arsenic	99.4		103	105			2.21
	Cadmium	106		93.1	111			17.4
	Chromium	101		101	102			1.37
	Copper	93.3		88.9	89.3			0.410
	Lead	103		103	103			0.0818
	Nickel	98.3		98.5	99.1			0.664
	Selenium	93.5		95.5	101			5.26
	Silver	98.2		98.5	98.8			0.275
	Thallium	107		105	106			0.878
EPA 300.0 Rev. 2.1	Bromide	104		103	101	99.9		0.919
EPA 350.1 Rev. 2.0	Ammonia-N	97.7		103	106			2.27
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.4		94.7	95.5			0.679
EPA 353.2 Rev. 2.0	NO2NO3-N	100		100	99.9			0.468
EPA 365.1 Rev. 2.0	Total-P	101		106	106			0.0193
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	106		103	105			1.62
EPA 8321B	2,4-D	115		128	133			3.67
	Acesulfame K	111		140	139			1.00
	Acetaminophen	86.2		103	107			4.10
	Acetamiprid	98.6		105	116			9.98
	Afidopyropen	110		110	114			3.77
	AMPA	99.1		103	94.4			9.02
	Bentazon	87.3		64.4	64.4			0.0481
	Benzovindiflupyr	82.6		83.4	77.5			7.35
	Carbamazepine	118		105	102			3.35
	Clothianidin	106		121	125			3.79
	Dinotefuran	94.5		140	123			12.8
	Diuron	105		96.7	97.9			1.20
	Endothall	85.9		101	97.2			4.27
	Fenuron	110		81.4	85.4			4.84
	Fluridone	88.9		88.0	86.0			2.35
	Glufosinate	118		114	106			6.73
	Glyphosate	125		113	117			3.24
	Hydrocodone	94.4		122	118			2.96
	Ibuprofen	89.9		86.1	78.5			9.28
	Imazapyr	87.2		121	119			2.17
	Imidacloprid	107		159	159			0.210
	Linuron	80.1		78.2	77.0			1.58
	Mandestrobin	89.2		86.5	86.6			0.120
	MCPP	137		143	147			2.51
	Naproxen	71.5		73.9	89.0			18.6
	Primidone	103		120	110			8.45
	Pyraclostrobin	76.9		87.9	85.6			2.56
	Sucralose	99.0		87.8	92.5			5.24
	Thiamethoxam	104		157	160			1.78
	Tolfenpyrad	51.8		55.1	56.8			2.91
	Triclopyr	104		112	117			4.17
SM 2320 B-2011	Total Alkalinity	104					0.0452	
SM 2540 D-2011	TSS						3.64	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision	
				LCS	MS
SM 4500 F-C-2011	Fluoride	98.3	98.4 101		1.47
SM 5310 B-2011	Organic Carbon	103	99.8 96.7		2.82

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2166886
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2166893
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2166893
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2166886
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2166887
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2166887
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2166887
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2166887
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2166888
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2166892
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2166892
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2166886
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2166893
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2166886
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2166886
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2166887

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/19/2020			03/19/2020 17:42	Julia Storbeck	2166886
EPA 200.7 Rev. 4.4	03/19/2020	03/19/2020 15:20	Elliott D. Healy	03/27/2020 00:05	Vijayalakshmi Reddy	2166893
EPA 200.8 Rev. 5.4	03/19/2020	03/19/2020 15:20	Elliott D. Healy	03/20/2020 19:17	Alexander Thompson	2166893
	03/19/2020	03/19/2020 15:20	Elliott D. Healy	03/20/2020 21:25	Alexander Thompson	2166893
	03/19/2020	03/19/2020 15:20	Elliott D. Healy	03/26/2020 23:32	Alexander Thompson	2166893
EPA 300.0 Rev. 2.1	03/19/2020			03/24/2020 08:18	Elliott Rodriguez	2166886
EPA 350.1 Rev. 2.0	03/19/2020			03/24/2020 16:10	Ping Hua	2166887
EPA 351.2 Rev. 2.0	03/19/2020	03/25/2020 09:45	Sima Feizi	03/26/2020 10:02	Jhamieka S. Greenwood	2166887
EPA 353.2 Rev. 2.0	03/19/2020			03/26/2020 08:43	Beverly Y. Sanders	2166887
EPA 365.1 Rev. 2.0	03/19/2020	03/26/2020 12:10	Lipi Saha	03/27/2020 10:09	Lipi Saha	2166887
EPA 365.1 Rev. 2.0 dissolved	03/19/2020			03/19/2020 15:58	Carlos Miranda	2166888
EPA 8321B	03/19/2020	03/20/2020 15:30	Mohammad Ghaffari	03/20/2020 18:58	Mohammad Ghaffari	2166892
	03/19/2020	03/20/2020 15:30	Mohammad Ghaffari	03/22/2020 19:09	Mohammad Ghaffari	2166892
	03/19/2020	03/20/2020 15:30	Mohammad Ghaffari	03/27/2020 09:27	Mohammad Ghaffari	2166892
	03/19/2020	03/24/2020 09:00	Hoor Shaik	03/26/2020 02:52	Mohammad Ghaffari	2166892
SM 2320 B-2011	03/19/2020			03/27/2020 13:49	Dale L. Simmons	2166886
SM 2340B	03/19/2020			03/27/2020 22:50	Vijayalakshmi Reddy	2166893
SM 2540 D-2011	03/19/2020			03/23/2020 15:22	Yijie Li	2166886
SM 4500 F-C-2011	03/19/2020			03/27/2020 16:16	Dale L. Simmons	2166886
SM 5310 B-2011	03/19/2020			03/21/2020 06:31	Lauren Lees	2166887