

Chemical Analysis Report

SE-DIST-2019-12-19-04

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

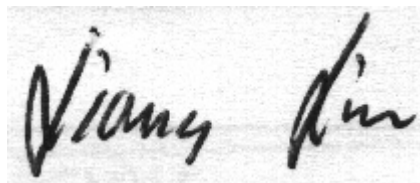
Event Description: **Last Minute Stuart**
Request ID: **RQ-2019-12-16-50**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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2199 South Rock Road
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-JAN-2020 14:11

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: Moores Creek @ 2nd

Collection Date/Time: 12/18/2019 10:30

Field ID: G2SE0025

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145461	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P376159	
		2,4-D	0.0049	I	ug/L	P376210	MS
		AMPA**	1.0	U	ug/L	P376159	
		Sucralose**	0.010	U	ug/L	P376159	
		Acetaminophen**	0.0080	U	ug/L	P376210	
		Acetamiprid**	0.0020	U	ug/L	P376210	
		Endothall**	0.25	U	ug/L	P376159	
		Glufosinate**	1.0	U	ug/L	P376159	
		Glyphosate**	1.0	U	ug/L	P376159	
		Afidopyropen**	0.0020	UJ	ug/L	P376210	
		Bentazon	0.0012	I	ug/L	P376210	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P376210	
		Carbamazepine**	8.0E-04	U	ug/L	P376210	
		Clothianidin**	0.0020	U	ug/L	P376210	
		Dinotefuran**	0.0020	U	ug/L	P376210	
		Diuron	0.0020	U	ug/L	P376210	
		Fenuron	0.016	U	ug/L	P376210	
		Fluridone**	8.0E-04	U	ug/L	P376210	
		Imazapyr**	0.011	I	ug/L	P376210	
		Hydrocodone**	0.0020	U	ug/L	P376210	
		Ibuprofen**	0.020	U	ug/L	P376210	
		Imidacloprid	0.0020	U	ug/L	P376210	MS
		Linuron	0.0040	U	ug/L	P376210	
		Mandestrobin**	0.0020	UJ	ug/L	P376210	
		MCPP	0.0020	U	ug/L	P376210	MS
		Naproxen**	0.0080	U	ug/L	P376210	
		Primidone**	0.0040	U	ug/L	P376210	
		Pyraclostrobin**	0.0020	U	ug/L	P376210	
		Thiamethoxam**	0.0020	U	ug/L	P376210	
		Tolfenpyrad**	0.0020	U	ug/L	P376210	
		Triclopyr**	0.0040	U	ug/L	P376210	

Ref. Method and Comment:

EPA 8321B: MDL for some parameters elevated due to matrix interference.

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Willoughby Creek

Collection Date/Time: 12/18/2019 11:35

Field ID: G2SE0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145451	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P376172	
	EPA 300.0	Bromide	39		mg Br/L	P377010	
	SM 2320 B-2011	Total Alkalinity	132		mg CaCO3/L	P376449	
	SM 2540 D-2011	TSS	10	I	mg/L	P376539	
	SM 4500 F-C-2011	Fluoride	0.77		mg F/L	P376451	
2145452	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P376466	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.59		mg N/L	P376584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.093		mg N/L	P376404	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P376437	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P376572	
2145453	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P376179	
2145463	EPA 200.7 Rev. 4.4	Iron	170	I	ug/L	P376494	
		Manganese	8.3	I	ug/L	P376494	
		Zinc	15	U	ug/L	P376494	
	EPA 200.8 Rev. 5.4	Aluminum	200		ug/L	P376494	
		Antimony	0.50	U	ug/L	P376494	
		Arsenic	2.3		ug/L	P376494	
		Cadmium	0.080	U	ug/L	P376494	
		Chromium	4.0	U	ug/L	P376494	
		Copper	3.3		ug/L	P376494	
		Lead	2.0	U	ug/L	P376494	
		Nickel	2.0	U	ug/L	P376494	
		Selenium	2.0	U	ug/L	P376494	
		Silver	0.10	U	ug/L	P376494	
		Thallium	1.0	U	ug/L	P376494	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376172

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P376494

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: P376494

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
Batch ID: P377010

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376466

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

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: P376437

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376179

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

Reference Method: EPA 8321B
Batch ID: P376159

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: P376210

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: P376449

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

Reference Method: SM 2540 D-2011
Batch ID: P376539

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P376572

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: P376494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	109		P	85 - 115
Manganese	102		P	85 - 115
Zinc	99.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P376494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	106		P	85 - 115
Arsenic	101		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	102		P	85 - 115
Copper	102		P	85 - 115
Lead	106		P	85 - 115
Nickel	103		P	85 - 115
Selenium	94.3		P	85 - 115
Silver	99.2		P	85 - 115
Thallium	111		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P377010

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376466

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376437

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P376159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	114		P	40 - 150
AMPA	96.6		P	40 - 150
Endothall	92.6		P	40 - 150
Glufosinate	92.9		P	40 - 150
Glyphosate	118		P	40 - 140
Sucralose	95.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P376210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	129		P	40 - 160
Acetaminophen	103		P	30 - 160
Acetamiprid	95.8		P	40 - 160
Afidopyropen	92.1		P	40 - 160
Bentazon	69.7		P	30 - 160
Benzovindiflupyr	93.1		P	40 - 160
Carbamazepine	92.6		P	40 - 160
Clothianidin	94.2		P	40 - 160
Dinotefuran	98.4		P	40 - 160
Diuron	79.0		P	40 - 160
Fenuron	99.2		P	40 - 160
Fluridone	90.1		P	40 - 160
Hydrocodone	106		P	40 - 160
Ibuprofen	69.7		P	30 - 160
Imazapyr	97.6		P	40 - 160
Imidacloprid	104		P	40 - 160
Linuron	56.6		P	40 - 160
Mandestrobin	91.5		P	40 - 160
MCPP	144		P	40 - 160
Naproxen	43.0		P	40 - 160
Primidone	92.8		P	40 - 160
Pyraclostrobin	90.6		P	30 - 160
Thiamethoxam	89.5		P	40 - 160
Tolfenpyrad	52.8		P	40 - 160
Triclopyr	89.6		P	30 - 160

Reference Method: SM 2320 B-2011
Batch ID: P376449

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P376572

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P376494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145329	Iron	101	103	P/P	80 - 120
2145329	Manganese	98.1	96.8	P/P	80 - 120
2145329	Zinc	95.1	95.7	P/P	80 - 120
2145907	Iron	105		P	70 - 130
2145907	Manganese	101		P	70 - 130
2145907	Zinc	99.6		P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P376494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145329	Aluminum	119	119	P/P	70 - 130
2145329	Antimony	112	110	P/P	70 - 130
2145329	Arsenic	110	110	P/P	70 - 130
2145329	Cadmium	97.4	94.6	P/P	70 - 130
2145329	Chromium	75.2	73.1	P/P	70 - 130
2145329	Copper	91.9	92.3	P/P	70 - 130
2145329	Lead	110	109	P/P	70 - 130
2145329	Nickel	92.5	91.8	P/P	70 - 130
2145329	Selenium	96.9	97.2	P/P	70 - 130
2145329	Silver	103	104	P/P	70 - 130
2145329	Thallium	116	115	P/P	70 - 130
2145907	Aluminum	111		P	70 - 130
2145907	Antimony	111		P	70 - 130
2145907	Arsenic	108		P	70 - 130
2145907	Cadmium	100		P	70 - 130
2145907	Chromium	82.0		P	70 - 130
2145907	Copper	94.8		P	70 - 130
2145907	Lead	107		P	70 - 130
2145907	Nickel	90.7		P	70 - 130
2145907	Selenium	106		P	70 - 130
2145907	Silver	106		P	70 - 130
2145907	Thallium	109		P	70 - 130

Reference Method: EPA 300.0
Batch ID: P377010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2147390	Bromide	101	101	P/P	90 - 110
2147464	Bromide	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144916	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145356	Kjeldahl Nitrogen	98.9	96.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145452	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144913	Total-P	96.6	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145357	O-Phosphate-P	95.9	95.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P376159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145196	Acesulfame K	67.4	69.8	P/P	40 - 150
2145196	AMPA	108	116	P/P	40 - 150
2145196	Endothall	100	100	P/P	40 - 150
2145196	Glufosinate	88.9	105	P/P	40 - 150
2145196	Glyphosate	110	114	P/P	40 - 140
2145196	Sucralose	85.6	84.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P376210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144517	2,4-D	160	149	F/P	40 - 160
2144517	Acetaminophen	117	119	P/P	30 - 160
2144517	Acetamiprid	111	112	P/P	40 - 160
2144517	Afidopyropen	108	104	P/P	40 - 160
2144517	Benzovindiflupyr	103	105	P/P	40 - 160
2144517	Carbamazepine	70.2	92.9	P/P	40 - 160
2144517	Clothianidin	117	104	P/P	40 - 160
2144517	Dinotefuran	123	127	P/P	40 - 160
2144517	Diuron	80.2	81.4	P/P	40 - 160
2144517	Fenuron	94.0	97.9	P/P	40 - 160
2144517	Hydrocodone	97.0	91.9	P/P	40 - 160
2144517	Ibuprofen	73.1	75.9	P/P	30 - 160
2144517	Imidacloprid	183	167	F/F	40 - 160
2144517	Linuron	71.5	72.9	P/P	40 - 160
2144517	Mandestrobin	90.3	95.6	P/P	40 - 160
2144517	MCP	149	165	P/F	40 - 160
2144517	Naproxen	99.8	98.7	P/P	40 - 160
2144517	Primidone	101	101	P/P	40 - 160
2144517	Pyraclostrobin	92.7	97.4	P/P	30 - 160
2144517	Thiamethoxam	152	152	P/P	40 - 160
2144517	Tolfenpyrad	55.9	58.4	P/P	40 - 160
2144517	Triclopyr	101	121	P/P	30 - 160

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145953	Fluoride	95.6	97.0	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P376572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145860	Organic Carbon	101	99.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145355	Turbidity	4.07	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P376494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145329	Iron	1.20	Spike	P	0 - 20
2145329	Manganese	1.25	Spike	P	0 - 20
2145329	Zinc	0.619	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P376494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145329	Aluminum	0.453	Spike	P	0 - 20
2145329	Antimony	1.98	Spike	P	0 - 20
2145329	Arsenic	0.549	Spike	P	0 - 20
2145329	Cadmium	2.91	Spike	P	0 - 20
2145329	Chromium	2.91	Spike	P	0 - 20
2145329	Copper	0.524	Spike	P	0 - 20
2145329	Lead	0.941	Spike	P	0 - 20
2145329	Nickel	0.698	Spike	P	0 - 20
2145329	Selenium	0.226	Spike	P	0 - 20
2145329	Silver	0.663	Spike	P	0 - 20
2145329	Thallium	1.27	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P377010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2147390	Bromide	0.378	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144916	Ammonia-N	1.24	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145356	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145452	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144913	Total-P	3.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145357	O-Phosphate-P	0.654	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P376159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145196	Acesulfame K	3.56	Spike	P	0 - 30
2145196	AMPA	6.95	Spike	P	0 - 30
2145196	Endothall	0.169	Spike	P	0 - 30
2145196	Glufosinate	16.6	Spike	P	0 - 30
2145196	Glyphosate	3.81	Spike	P	0 - 30
2145196	Sucralose	1.71	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P376210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144517	2,4-D	5.47	Spike	P	0 - 30
2144517	Acetaminophen	1.61	Spike	P	0 - 30
2144517	Acetamiprid	0.488	Spike	P	0 - 30
2144517	Afidopyropen	3.76	Spike	P	0 - 30
2144517	Bentazon	12.0	Spike	P	0 - 30
2144517	Benzovindiflupyr	2.00	Spike	P	0 - 30
2144517	Carbamazepine	27.8	Spike	P	0 - 30
2144517	Clothianidin	11.6	Spike	P	0 - 30
2144517	Dinotefuran	3.15	Spike	P	0 - 30
2144517	Diuron	1.39	Spike	P	0 - 30
2144517	Fenuron	4.07	Spike	P	0 - 30
2144517	Fluridone	1.88	Spike	P	0 - 30
2144517	Hydrocodone	5.37	Spike	P	0 - 30
2144517	Ibuprofen	3.88	Spike	P	0 - 30
2144517	Imazapyr	15.9	Spike	P	0 - 30
2144517	Imidacloprid	7.44	Spike	P	0 - 30
2144517	Linuron	1.93	Spike	P	0 - 30
2144517	Mandestrobin	5.76	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P376210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144517	MCP	10.0	Spike	P	0 - 30
2144517	Naproxen	1.10	Spike	P	0 - 30
2144517	Primidone	0.124	Spike	P	0 - 30
2144517	Pyraclostrobin	4.94	Spike	P	0 - 30
2144517	Thiamethoxam	0.145	Spike	P	0 - 30
2144517	Tolfenpyrad	4.30	Spike	P	0 - 30
2144517	Triclopyr	17.7	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P376449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145953	Total Alkalinity	0.242	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145953	Fluoride	0.953	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P376572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145860	Organic Carbon	1.10	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2145461
Field Sample ID: G2SE0025

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	148	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.0	P	30 - 160
EPA 8321B	Diuron-d6	82.8	P	30 - 160
EPA 8321B	Endothall-d6	113	P	30 - 160
EPA 8321B	Endothall-d6	113	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	43.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	43.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	76.9	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	74.6	P	30 - 160
EPA 8321B	Sucralose-d6	74.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96471

Included Lab Sample IDs: 2145451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96476

Included Lab Sample IDs: 2145453

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	96.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A96502

Included Lab Sample IDs: 2145461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	92.7	P/P	60 - 160
Endothall	97.4	99.7	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A96534

Included Lab Sample IDs: 2145461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	98.8	101	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96568

Included Lab Sample IDs: 2145452

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

Reference Method: SM 2320 B-2011

Run ID: A96583

Included Lab Sample IDs: 2145451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A96583

Included Lab Sample IDs: 2145451

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96586

Included Lab Sample IDs: 2145452

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A96588

Included Lab Sample IDs: 2145461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.9	90.6	P/P	50 - 150
Acetaminophen	118	109	P/P	60 - 160
Acetamiprid	107	116	P/P	50 - 150
Afidopyropen	107	118	P/P	50 - 150
Bentazon	88.0	86.9	P/P	50 - 160
Benzovindiflupyr	107	111	P/P	50 - 150
Carbamazepine	114	105	P/P	60 - 150
Clothianidin	94.4	94.1	P/P	60 - 150
Dinotefuran	104	101	P/P	50 - 150
Diuron	104	104	P/P	60 - 150
Fenuron	121	109	P/P	60 - 150
Fluridone	110	122	P/P	60 - 160
Hydrocodone	107	118	P/P	60 - 150
Ibuprofen	119	104	P/P	50 - 160
Imazapyr	97.9	85.4	P/P	50 - 150
Imidacloprid	104	110	P/P	60 - 150
Linuron	100	105	P/P	60 - 150
Mandestrobin	111	110	P/P	50 - 150
MCPP	89.4	91.1	P/P	50 - 150
Naproxen	125	110	P/P	50 - 160
Primidone	113	115	P/P	60 - 150
Pyraclostrobin	117	118	P/P	60 - 150
Thiamethoxam	99.7	93.7	P/P	50 - 150
Tolfenpyrad	104	105	P/P	60 - 150
Triclopyr	85.3	87.3	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A96635

Included Lab Sample IDs: 2145463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	104	104	P/P	90 - 110
Manganese	104	104	P/P	90 - 110
Zinc	99.4	99.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A96639

Included Lab Sample IDs: 2145452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96642

Included Lab Sample IDs: 2145452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A96650

Included Lab Sample IDs: 2145461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	88.7	93.6	P/P	60 - 160
Glufosinate	92.2	92.8	P/P	60 - 160
Glyphosate	114	101	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96661

Included Lab Sample IDs: 2145463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	107	108	P/P	90 - 110
Cadmium	108	107	P/P	90 - 110
Copper	105	103	P/P	90 - 110
Lead	107	107	P/P	90 - 110
Nickel	104	101	P/P	90 - 110
Thallium	105	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96686

Included Lab Sample IDs: 2145463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	102	P/P	90 - 110
Arsenic	103	104	P/P	90 - 110
Chromium	96.5	95.0	P/P	90 - 110
Selenium	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96702

Included Lab Sample IDs: 2145452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	95.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96742

Included Lab Sample IDs: 2145463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	99.2	99.7	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A96846

Included Lab Sample IDs: 2145451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	94.3	98.4	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			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						4.07	
EPA 200.7 Rev. 4.4	Iron	109	101	103	105			1.20
	Manganese	102	98.1	96.8	101			1.25
	Zinc	99.7	95.1	95.7	99.6			0.619
EPA 200.8 Rev. 5.4	Aluminum	103	119	119	111			0.453
	Antimony	106	112	110	111			1.98
	Arsenic	101	110	110	108			0.549
	Cadmium	102	97.4	94.6	100			2.91
	Chromium	102	75.2	73.1	82.0			2.91
	Copper	102	91.9	92.3	94.8			0.524
	Lead	106	110	109	107			0.941
	Nickel	103	92.5	91.8	90.7			0.698
	Selenium	94.3	96.9	97.2	106			0.226
	Silver	99.2	103	104	106			0.663
	Thallium	111	116	115	109			1.27
EPA 300.0	Bromide	102	101	101	99.3			0.378
EPA 350.1 Rev. 2.0	Ammonia-N	100	103	104				1.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.7	98.9	96.5				1.94
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101				0.0
EPA 365.1 Rev. 2.0	Total-P	105	96.6	93.4				3.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	95.9	95.1				0.654
EPA 8321B	2,4-D	129	160	149				5.47
	Acesulfame K	114	67.4	69.8				3.56
	Acetaminophen	103	117	119				1.61
	Acetamiprid	95.8	111	112				0.488
	Afidopyropen	92.1	108	104				3.76
	AMPA	96.6	108	116				6.95
	Bentazon	69.7						12.0
	Benzovindiflupyr	93.1	103	105				2.00
	Carbamazepine	92.6	70.2	92.9				27.8
	Clothianidin	94.2	117	104				11.6
	Dinotefuran	98.4	123	127				3.15
	Diuron	79.0	80.2	81.4				1.39
	Endothall	92.6	100	100				0.169
	Fenuron	99.2	94.0	97.9				4.07
	Fluridone	90.1						1.88
	Glufosinate	92.9	88.9	105				16.6
	Glyphosate	118	110	114				3.81
	Hydrocodone	106	97.0	91.9				5.37
	Ibuprofen	69.7	73.1	75.9				3.88
	Imazapyr	97.6						15.9
	Imidacloprid	104	183	167				7.44
	Linuron	56.6	71.5	72.9				1.93
	Mandestrobin	91.5	90.3	95.6				5.76
	MCPP	144	149	165				10.0
	Naproxen	43.0	99.8	98.7				1.10
	Primidone	92.8	101	101				0.124
	Pyraclostrobin	90.6	92.7	97.4				4.94
	Sucralose	95.2	85.6	84.1				1.71
	Thiamethoxam	89.5	152	152				0.145
	Tolfenpyrad	52.8	55.9	58.4				4.30
	Triclopyr	89.6	101	121				17.7
SM 2320 B-2011	Total Alkalinity	103					0.242	
SM 4500 F-C-2011	Fluoride	96.5	95.6	97.0				0.953

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
SM 5310 B-2011	Organic Carbon	102	101	99.7		1.10

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2145451
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2145463
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2145463
EPA 300.0 / E31780	Bromide in aqueous matrices	2145451
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2145452
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2145452
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2145452
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2145452
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2145453
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2145461
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2145461
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2145451
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2145451
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2145451
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2145452

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	12/19/2019			12/19/2019 14:53	Yen Ta	2145451
EPA 200.7 Rev. 4.4	12/19/2019	12/27/2019 15:40	Elliott D. Healy	12/30/2019 17:51	Betina Topolski	2145463
EPA 200.8 Rev. 5.4	12/19/2019	12/27/2019 15:40	Elliott D. Healy	01/02/2020 19:18	Alexander Thompson	2145463
	12/19/2019	12/27/2019 15:40	Elliott D. Healy	01/02/2020 23:33	Alexander Thompson	2145463
	12/19/2019	12/27/2019 15:40	Elliott D. Healy	01/03/2020 16:14	Alexander Thompson	2145463
	12/19/2019	12/27/2019 15:40	Elliott D. Healy	01/07/2020 17:35	Alexander Thompson	2145463
EPA 300.0	12/19/2019			01/13/2020 23:42	Lipi Saha	2145451
EPA 350.1 Rev. 2.0	12/19/2019			12/26/2019 17:57	Ping Hua	2145452
EPA 351.2 Rev. 2.0	12/19/2019	01/02/2020 13:10	Sima Feizi	01/03/2020 15:09	Virginia P. Brown	2145452
EPA 353.2 Rev. 2.0	12/19/2019			12/26/2019 11:49	Beverly Y. Sanders	2145452
EPA 365.1 Rev. 2.0	12/19/2019	12/26/2019 15:49	Yen Ta	12/30/2019 12:42	Benjamin T. Nordmann	2145452
EPA 365.1 Rev. 2.0 dissolved	12/19/2019			12/19/2019 16:14	Samantha Davila	2145453
EPA 8321B	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/19/2019 20:10	Rebecca Ware	2145461
	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/20/2019 19:48	Rebecca Ware	2145461
	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/24/2019 07:29	Mohammad Ghaffari	2145461
	12/19/2019	12/22/2019 09:00	Hoor Shaik	12/25/2019 18:18	Juyoung Kim	2145461
SM 2320 B-2011	12/19/2019			12/27/2019 02:31	Dale L. Simmons	2145451
SM 2540 D-2011	12/19/2019			12/23/2019 16:45	Yijie Li	2145451
SM 4500 F-C-2011	12/19/2019			12/26/2019 23:18	Dale L. Simmons	2145451
SM 5310 B-2011	12/19/2019			12/31/2019 03:56	Madeline Funaro	2145452