

Chemical Analysis Report

NW-DIST-2021-04-16-01

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

Event Description: **Laurel Hill West Run**
Request ID: **RQ-2021-04-12-34**
Customer: **NW-DIST**
Project ID: **SMP**

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

Date Certified: 10-MAY-2021 17:30



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: 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: Deadfall Creek Upstream of Shockley Springs Rd **Collection Date/Time: 04/15/2021 11:55**

Field ID: G4NW0490

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240518	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P396717	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P397040	
		Sulfate	0.92		mg SO4/L	P397042	
	SM 2120 B-2011	Color (true)	46		PCU	P396711	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P396887	
	SM 2540 C-2011	TDS	15	I	mg/L	P397228	
	SM 2540 D-2011	TSS	3	I	mg/L	P397225	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P397116	
2240520	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P397507	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P397070	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P397036	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P396858	
	SM 5310 B-2011	Organic Carbon	4.5		mg C/L	P397238	
2240522	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P396706	

Ref. Method and Comment:

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

Sample Location: Deadfall Creek Upstream of Old River Rd

Collection Date/Time: 04/15/2021 11:30

Field ID: G4NW0491

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240519	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P396717	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P397040	
		Sulfate	0.79		mg SO4/L	P397042	
		Color (true)	41		PCU	P396711	
	SM 2320 B-2011	Total Alkalinity	1.3	I	mg CaCO3/L	P397115	
	SM 2540 C-2011	TDS	15	I	mg/L	P397229	
	SM 2540 D-2011	TSS	3	IA	mg/L	P397226	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P396944	
2240521	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P397507	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P397070	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P397036	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P396858	
	SM 5310 B-2011	Organic Carbon	3.7		mg C/L	P397238	
2240523	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P396707	

Ref. Method and Comment:

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

Sample Location: Wilkinson Creek upstream of Wilkinson Bluff Road

Collection Date/Time: 04/15/2021 10:45

Field ID: G4NW0357

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2240529	EPA 8321B	2,4-D	0.0020	U	ug/L	P396769	
		Acesulfame K	0.10	U	ug/L	P396835	MS
		2,4,5-T	0.0040	U	ug/L	P396769	
		AMPA	0.10	U	ug/L	P396835	
		Sucralose	0.19		ug/L	P396835	
		Acetaminophen	0.14		ug/L	P396769	MS, RPD
		Acetamiprid	0.0020	U	ug/L	P396769	
		Endothall	0.25	U	ug/L	P396835	
		Glufosinate	0.10	U	ug/L	P396835	
		Glyphosate	0.61		ug/L	P396835	
		Afidopyropen	0.0020	U	ug/L	P396769	
		Bentazon	8.0E-04	U	ug/L	P396769	
		Benzovindiflupyr	0.0020	U	ug/L	P396769	
		Carbamazepine	8.0E-04	U	ug/L	P396769	
		Clothianidin	0.0020	U	ug/L	P396769	
		Dinotefuran	0.0020	U	ug/L	P396769	
		Diuron	0.0020	U	ug/L	P396769	
		Fenuron	0.016	U	ug/L	P396769	
		Fluridone	8.0E-04	U	ug/L	P396769	
		Imazapyr	0.0040	U	ug/L	P396769	
		Hydrocodone	0.0020	U	ug/L	P396769	
		Ibuprofen	0.020	U	ug/L	P396769	
		Imidacloprid	0.0066	I	ug/L	P396769	MS
		Linuron	0.0040	U	ug/L	P396769	
		Mandestrobin	0.0020	U	ug/L	P396769	
		MCPP	0.0020	U	ug/L	P396769	MS
		Naproxen	0.0080	U	ug/L	P396769	
		Primidone	0.0040	U	ug/L	P396769	
		Pyraclostrobin	0.0020	U	ug/L	P396769	
		Thiamethoxam	0.0020	U	ug/L	P396769	MS
		Tolfenpyrad	0.0020	U	ug/L	P396769	
		Triclopyr	0.0040	U	ug/L	P396769	RPD

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396717

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397040

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397042

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397036

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396858

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396706

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396707

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P396769

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	0.016	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

Reference Method: EPA 8321B

Batch ID: P396835

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: SM 2120 B-2011

Batch ID: P396711

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P396887

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P397115

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

Reference Method: SM 2540 C-2011
Batch ID: P397228

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P397229

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P397225

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P397226

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P396944

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P397116

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P397238

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397040

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397042

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397036

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: P396858

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396706

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.2		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P396769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	127		P	30 - 160
2,4,5-T	119		P	30 - 160
Acetaminophen	76.4		P	30 - 150
Acetamiprid	94.3		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P396769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Afidopyropen	73.3		P	30 - 160
Bentazon	37.3		P	30 - 150
Benzovindiflupyr	82.9		P	30 - 160
Carbamazepine	85.9		P	30 - 160
Clothianidin	97.4		P	30 - 160
Dinotefuran	87.2		P	30 - 160
Diuron	76.7		P	30 - 160
Fenuron	98.2		P	30 - 160
Fluridone	97.0		P	30 - 160
Hydrocodone	93.0		P	30 - 160
Ibuprofen	82.3		P	30 - 160
Imazapyr	107		P	30 - 160
Imidacloprid	107		P	30 - 160
Linuron	70.9		P	30 - 160
Mandestrobin	90.0		P	30 - 160
MCPP	140		P	30 - 160
Naproxen	99.3		P	30 - 160
Primidone	75.4		P	30 - 160
Pyraclostrobin	79.3		P	30 - 160
Thiamethoxam	101		P	30 - 160
Tolfenpyrad	56.7		P	30 - 160
Triclopyr	125		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P396835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	150		P	40 - 150
AMPA	84.1		P	40 - 150
Endothall	99.7		P	40 - 150
Glufosinate	82.7		P	40 - 150
Glyphosate	65.5		P	40 - 140
Sucralose	99.5		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P396711

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P396887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 2320 B-2011

Batch ID: P397115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	93 - 104

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P396944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P397116

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P397238

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 300.0 Rev. 2.1
Batch ID: P397040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240221	Chloride	100		P	90 - 110
2240489	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240221	Sulfate	97.8		P	90 - 110
2240489	Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240915	Ammonia-N	94.8	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240520	Kjeldahl Nitrogen	106	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240299	NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240298	Total-P	108	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240300	O-Phosphate-P	96.9	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240523	O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P396769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240190	2,4-D	130	149	P/P	30 - 160
2240190	2,4,5-T	97.7	132	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P396769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240190	Acetaminophen	96.0	237	P/F	30 - 150
2240190	Acetamiprid	106	109	P/P	30 - 160
2240190	Afidopyropen	80.6	79.3	P/P	30 - 160
2240190	Bentazon	33.0	41.8	P/P	30 - 150
2240190	Benzovindiflupyr	85.2	96.8	P/P	30 - 160
2240190	Carbamazepine	84.5	95.2	P/P	30 - 160
2240190	Clothianidin	120	129	P/P	30 - 160
2240190	Dinotefuran	114	118	P/P	30 - 160
2240190	Diuron	74.4	70.0	P/P	30 - 160
2240190	Fenuron	112	122	P/P	30 - 160
2240190	Fluridone	103	106	P/P	30 - 160
2240190	Hydrocodone	115	125	P/P	30 - 160
2240190	Ibuprofen	69.9	90.7	P/P	30 - 160
2240190	Imazapyr	129	149	P/P	30 - 160
2240190	Imidacloprid	149	185	P/F	30 - 160
2240190	Linuron	89.4	94.7	P/P	30 - 160
2240190	Mandestrobin	88.6	94.9	P/P	30 - 160
2240190	MCPP	152	177	P/F	30 - 160
2240190	Naproxen	90.5	99.2	P/P	30 - 160
2240190	Primidone	108	112	P/P	30 - 160
2240190	Pyraclostrobin	77.8	87.0	P/P	30 - 160
2240190	Thiamethoxam	146	170	P/F	30 - 160
2240190	Tolfenpyrad	62.1	57.3	P/P	30 - 160
2240190	Triclopyr	98.0	149	P/P	30 - 160

Reference Method: EPA 8321B

Batch ID: P396835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240044	Acesulfame K	193	160	F/F	40 - 150
2240044	AMPA	86.9	85.6	P/P	40 - 150
2240044	Endothall	88.1	78.6	P/P	40 - 150
2240044	Glufosinate	69.5	61.0	P/P	40 - 150
2240044	Glyphosate	118	138	P/P	40 - 140
2240044	Sucralose	95.1	103	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P396944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240949	Fluoride	98.5	97.9	P/P	94 - 107

Reference Method: SM 4500 F-C-2011

Batch ID: P397116

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240221	Fluoride	100	101	P/P	94 - 107

Reference Method: SM 5310 B-2011

Batch ID: P397238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P397238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2240082	Organic Carbon	99.4	99.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P396717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240500	Turbidity	4.11	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240221	Chloride	0.162	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P397042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240221	Sulfate	0.0466	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P397507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240915	Ammonia-N	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P397070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240520	Kjeldahl Nitrogen	2.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P397036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240299	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P396858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240298	Total-P	0.173	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240300	O-Phosphate-P	0.588	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P396707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240523	O-Phosphate-P	1.71	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P396769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240190	2,4-D	13.6	Spike	P	0 - 30
2240190	2,4,5-T	29.7	Spike	P	0 - 30
2240190	Acetaminophen	84.5	Spike	F	0 - 30
2240190	Acetamiprid	2.55	Spike	P	0 - 30
2240190	Afidopyropen	1.68	Spike	P	0 - 30
2240190	Bentazon	17.0	Spike	P	0 - 30
2240190	Benzovindiflupyr	12.8	Spike	P	0 - 30
2240190	Carbamazepine	11.0	Spike	P	0 - 30
2240190	Clothianidin	7.28	Spike	P	0 - 30
2240190	Dinotefuran	3.60	Spike	P	0 - 30
2240190	Diuron	6.08	Spike	P	0 - 30
2240190	Fenuron	8.32	Spike	P	0 - 30
2240190	Fluridone	2.87	Spike	P	0 - 30
2240190	Hydrocodone	8.23	Spike	P	0 - 30
2240190	Ibuprofen	25.9	Spike	P	0 - 30
2240190	Imazapyr	14.4	Spike	P	0 - 30
2240190	Imidacloprid	19.2	Spike	P	0 - 30
2240190	Linuron	5.80	Spike	P	0 - 30
2240190	Mandestrobin	6.94	Spike	P	0 - 30
2240190	MCP	14.7	Spike	P	0 - 30
2240190	Naproxen	9.23	Spike	P	0 - 30
2240190	Primidone	2.91	Spike	P	0 - 30
2240190	Pyraclostrobin	11.1	Spike	P	0 - 30
2240190	Thiamethoxam	15.5	Spike	P	0 - 30
2240190	Tolfenpyrad	8.09	Spike	P	0 - 30
2240190	Triclopyr	41.0	Spike	F	0 - 30

Reference Method: EPA 8321B
Batch ID: P396835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240044	Acesulfame K	18.7	Spike	P	0 - 30
2240044	AMPA	1.42	Spike	P	0 - 30
2240044	Endothall	11.4	Spike	P	0 - 30
2240044	Glufosinate	13.0	Spike	P	0 - 30
2240044	Glyphosate	14.1	Spike	P	0 - 30
2240044	Sucralose	7.10	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P396711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P396711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240500	Color (true)	0.551	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P396887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240221	Total Alkalinity	0.309	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P397115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240949	Total Alkalinity	0.595	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P397228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240210	TDS	3.26	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P397229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2239966	TDS	6.72	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P396944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240949	Fluoride	0.454	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P397116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240221	Fluoride	0.472	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P397238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2240082	Organic Carbon	0.197	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Surrogates

Lab Sample ID: 2240529

Field Sample ID: G4NW0357

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	151	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	118	P	30 - 160
EPA 8321B	Diuron-d6	75.9	P	30 - 160
EPA 8321B	Endothall-d6	118	P	40 - 160
EPA 8321B	Endothall-d6	118	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	67.4	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	67.4	P	40 - 160
EPA 8321B	Ibuprofen-d3	74.2	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A104788

Included Lab Sample IDs: 2240518, 2240519

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A104789

Included Lab Sample IDs: 2240522, 2240523

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.1	98.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A104791

Included Lab Sample IDs: 2240518, 2240519

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A104869

Included Lab Sample IDs: 2240518, 2240519

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.4	99.8	P/P	90 - 110
Sulfate	98.6	99.1	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A104870

Included Lab Sample IDs: 2240518

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104883

Included Lab Sample IDs: 2240520, 2240521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	94.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A104891

Included Lab Sample IDs: 2240519

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

Reference Method: EPA 8321B

Run ID: A104896

Included Lab Sample IDs: 2240529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	137	113	P/P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A104896
Included Lab Sample IDs: 2240529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	93.3	97.8	P/P	40 - 160
Endothall	79.8	81.6	P/P	40 - 160
Glufosinate	86.8	99.8	P/P	40 - 160
Glyphosate	83.8	66.0	P/P	40 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A104904
Included Lab Sample IDs: 2240520, 2240521

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

Reference Method: SM 2320 B-2011
Run ID: A104962
Included Lab Sample IDs: 2240519

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.3	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A104962
Included Lab Sample IDs: 2240518

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

Reference Method: SM 5310 B-2011
Run ID: A105018
Included Lab Sample IDs: 2240520, 2240521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A105021
Included Lab Sample IDs: 2240520, 2240521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	99.6	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A105083
Included Lab Sample IDs: 2240529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	112	111	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A105098
Included Lab Sample IDs: 2240529

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.4	116	P/P	50 - 150
2,4,5-T	118	109	P/P	50 - 150
Acetaminophen	93.2	125	P/P	60 - 160
Acetamiprid	116	122	P/P	50 - 150
Afidopyropen	108	133	P/P	50 - 150
Bentazon	137	132	P/P	50 - 160
Benzovindiflupyr	101	114	P/P	50 - 160
Carbamazepine	104	119	P/P	60 - 150
Clothianidin	107	108	P/P	60 - 150
Dinotefuran	111	135	P/P	50 - 150
Diuron	88.3	110	P/P	60 - 160
Fenuron	107	116	P/P	60 - 150
Fluridone	117	129	P/P	60 - 160
Hydrocodone	113	130	P/P	60 - 150
Ibuprofen	86.0	89.7	P/P	50 - 160
Imazapyr	126	129	P/P	50 - 150
Imidacloprid	102	124	P/P	60 - 150
Linuron	100	122	P/P	60 - 150
Mandestrobin	109	117	P/P	50 - 150
MCPP	112	113	P/P	50 - 150
Naproxen	113	116	P/P	50 - 160
Primidone	95.8	110	P/P	60 - 150
Pyraclostrobin	116	120	P/P	60 - 150
Thiamethoxam	116	131	P/P	50 - 150
Tolfenpyrad	116	127	P/P	60 - 150
Triclopyr	98.7	115	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A105117
Included Lab Sample IDs: 2240520, 2240521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					4.11	
EPA 300.0 Rev. 2.1	Chloride	101	100	98.4		0.162	
	Sulfate	99.1	97.8	96.6		0.0466	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	94.8	96.0			1.19
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	106	109			2.51
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	99.0	99.5			0.504
EPA 365.1 Rev. 2.0	Total-P	107	108	109			0.173
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	96.9	97.5			0.588
	O-Phosphate-P	97.2	98.5	100			1.71
EPA 8321B	2,4-D	127	130	149			13.6
	2,4,5-T	119	97.7	132			29.7
	Acesulfame K	150	193	160			18.7
	Acetaminophen	76.4	96.0	237			84.5
	Acetamiprid	94.3	106	109			2.55
	Afidopyropen	73.3	80.6	79.3			1.68
	AMPA	84.1	86.9	85.6			1.42
	Bentazon	37.3	33.0	41.8			17.0
	Benzovindiflupyr	82.9	85.2	96.8			12.8
	Carbamazepine	85.9	84.5	95.2			11.0
	Clothianidin	97.4	120	129			7.28
	Dinotefuran	87.2	114	118			3.60
	Diuron	76.7	74.4	70.0			6.08
	Endothall	99.7	88.1	78.6			11.4
	Fenuron	98.2	112	122			8.32
	Fluridone	97.0	103	106			2.87
	Glufosinate	82.7	69.5	61.0			13.0
	Glyphosate	65.5	118	138			14.1
	Hydrocodone	93.0	115	125			8.23
	Ibuprofen	82.3	69.9	90.7			25.9
	Imazapyr	107	129	149			14.4
	Imidacloprid	107	149	185			19.2
	Linuron	70.9	89.4	94.7			5.80
	Mandestrobin	90.0	88.6	94.9			6.94
	MCPP	140	152	177			14.7
	Naproxen	99.3	90.5	99.2			9.23
	Primidone	75.4	108	112			2.91
	Pyraclostrobin	79.3	77.8	87.0			11.1
	Sucralose	99.5	95.1	103			7.10
	Thiamethoxam	101	146	170			15.5
	Tolfenpyrad	56.7	62.1	57.3			8.09
	Triclopyr	125	98.0	149			41.0
SM 2120 B-2011	Color (true)	101				0.551	
SM 2320 B-2011	Total Alkalinity	101				0.309	
	Total Alkalinity	100				0.595	
SM 2540 C-2011	TDS					3.26	
	TDS					6.72	
SM 4500 F-C-2011	Fluoride	99.1	98.5	97.9			0.454
	Fluoride	98.8	100	101			0.472
SM 5310 B-2011	Organic Carbon	96.3	99.4	99.1			0.197

Reference Method Descriptions

Method	Description	Associated Samples
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Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2240518, 2240519
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2240518, 2240519
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2240518, 2240519
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2240520, 2240521
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2240520, 2240521
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2240520, 2240521
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2240520, 2240521
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2240522, 2240523
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2240529
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2240529
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2240518, 2240519
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2240518, 2240519
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2240518, 2240519
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2240518, 2240519
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2240518, 2240519
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2240520, 2240521

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	04/16/2021			04/16/2021 16:20	Yen Ta	2240518, 2240519
EPA 300.0 Rev. 2.1	04/16/2021			04/23/2021 00:38	Lipi Saha	2240518
	04/16/2021			04/23/2021 00:50	Lipi Saha	2240519
EPA 350.1 Rev. 2.0	04/16/2021			05/01/2021 09:48	Ping Hua	2240520
	04/16/2021			05/01/2021 09:50	Ping Hua	2240521
EPA 351.2 Rev. 2.0	04/16/2021	04/23/2021 14:33	Benjamin T. Nordmann	04/27/2021 12:48	Virginia P. Brown	2240520
	04/16/2021	04/23/2021 14:33	Benjamin T. Nordmann	04/27/2021 12:53	Virginia P. Brown	2240521
EPA 353.2 Rev. 2.0	04/16/2021			04/22/2021 10:56	Beverly Y. Sanders	2240520
	04/16/2021			04/22/2021 10:58	Beverly Y. Sanders	2240521
EPA 365.1 Rev. 2.0	04/16/2021	04/20/2021 14:25	Yen Ta	04/21/2021 13:40	Shengyu Ding	2240520
	04/16/2021	04/20/2021 14:25	Yen Ta	04/21/2021 13:41	Shengyu Ding	2240521
EPA 365.1 Rev. 2.0 dissolved	04/16/2021			04/16/2021 14:45	Blanca Fach	2240522
	04/16/2021			04/16/2021 14:48	Blanca Fach	2240523
EPA 8321B	04/16/2021	04/20/2021 09:00	Hoor Shaik	04/30/2021 12:40	Juyoung Kim	2240529
	04/16/2021	04/20/2021 10:30	Rebecca Ware	04/20/2021 15:45	Rebecca Ware	2240529
	04/16/2021	04/20/2021 10:30	Rebecca Ware	04/28/2021 19:45	Rebecca Ware	2240529
SM 2120 B-2011	04/16/2021			04/16/2021 15:14	Madeline Gruver	2240518
	04/16/2021			04/16/2021 15:15	Madeline Gruver	2240519
SM 2320 B-2011	04/16/2021			04/20/2021 22:02	Dale L. Simmons	2240518
	04/16/2021			04/23/2021 18:12	Dale L. Simmons	2240519
SM 2540 C-2011	04/16/2021			04/20/2021 15:21	Yijie Li	2240518, 2240519
SM 2540 D-2011	04/16/2021			04/20/2021 15:21	Yijie Li	2240518, 2240519
SM 4500 F-C-2011	04/16/2021			04/21/2021 21:50	Dale L. Simmons	2240519
	04/16/2021			04/24/2021 00:42	Dale L. Simmons	2240518
SM 5310 B-2011	04/16/2021			04/23/2021 20:11	Lauren Lees	2240520
	04/16/2021			04/23/2021 20:20	Lauren Lees	2240521