

Chemical Analysis Report

NW-DIST-2020-03-10-01

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

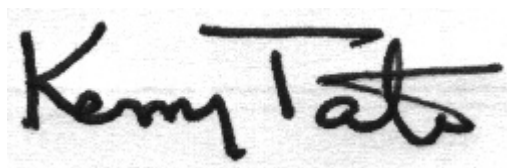
Event Description: **Laurel Hill Run**
Request ID: **RQ-2020-03-09-21**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 24-MAR-2020 12:30

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: POND CREEK @ CR 393

Collection Date/Time: 03/09/2020 10:50

Field ID: G4NW0195

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163491	EPA 8321B	2,4-D	0.0026	I	ug/L	P380458	
		Acesulfame K**	0.10	U	ug/L	P380246	
		AMPA**	0.10	U	ug/L	P380246	
		Sucralose**	0.18		ug/L	P380246	
		Acetaminophen**	0.0080	U	ug/L	P380458	
		Acetamiprid**	0.0020	U	ug/L	P380458	
		Endothall**	0.25	U	ug/L	P380246	
		Glufosinate**	0.10	U	ug/L	P380246	
		Glyphosate**	0.10	U	ug/L	P380246	
		Afidopyropen**	0.0020	UJ	ug/L	P380458	
		Bentazon	8.6E-04	I	ug/L	P380458	MS
		Benzovindiflupyr**	0.0020	UJ	ug/L	P380458	
		Carbamazepine**	8.0E-04	U	ug/L	P380458	
		Clothianidin**	0.0020	U	ug/L	P380458	
		Dinotefuran**	0.0020	U	ug/L	P380458	
		Diuron	0.0020	U	ug/L	P380458	
		Fenuron	0.016	U	ug/L	P380458	
		Fluridone**	8.0E-04	U	ug/L	P380458	
		Imazapyr**	0.0040	U	ug/L	P380458	
		Hydrocodone**	0.0020	U	ug/L	P380458	
		Ibuprofen**	0.020	U	ug/L	P380458	
		Imidacloprid	0.0020	U	ug/L	P380458	
		Linuron	0.0040	U	ug/L	P380458	
		Mandestrobin**	0.0020	UJ	ug/L	P380458	
		MCPP	0.0020	U	ug/L	P380458	
		Naproxen**	0.0080	U	ug/L	P380458	
		Primidone**	0.0040	U	ug/L	P380458	
		Pyraclostrobin**	0.0020	U	ug/L	P380458	
		Thiamethoxam**	0.0020	U	ug/L	P380458	
		Tolfenpyrad**	0.0020	U	ug/L	P380458	
		Triclopyr**	0.0040	U	ug/L	P380458	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Horsehead Creek upstream of Steele Mill Creek Rd **Collection Date/Time: 03/09/2020 12:20**

Field ID: G4NW0428

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163476	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P380405	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P380613	
		Sulfate	1.0		mg SO4/L	P380617	
	SM 2120 B-2011	Color (true)	62	A	PCU	P380434	
	SM 2320 B-2011	Total Alkalinity	4.3		mg CaCO3/L	P380864	
	SM 2540 C-2011	TDS	27		mg/L	P381105	
	SM 2540 D-2011	TSS	4	I	mg/L	P380979	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P380715	
2163478	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P380883	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P380925	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P380625	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P380733	
	SM 5310 B-2011	Organic Carbon	5.8		mg C/L	P380562	
2163480	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P380377	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Poverty Creek upstream of Poverty Creek Rd Collection Date/Time: 03/09/2020 13:00

Field ID: G4NW0427

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2163477	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P380405	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P380614	
		Sulfate	3.0		mg SO4/L	P380618	
	SM 2120 B-2011	Color (true)	16		PCU	P380434	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P380864	
	SM 2540 C-2011	TDS	26		mg/L	P381105	
	SM 2540 D-2011	TSS	5	I	mg/L	P380979	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P380715	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P380883	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.082	I	mg N/L	P380925	
2163479	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P380845	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P380733	
	SM 5310 B-2011	Organic Carbon	2.5		mg C/L	P380562	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P380377	
	dissolved						

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380405

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380613

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380617

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380625

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

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: P380733

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380377

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

Reference Method: EPA 8321B
Batch ID: P380246

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: P380458

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 2120 B-2011
Batch ID: P380434

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P380864

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

Reference Method: SM 2540 C-2011
Batch ID: P381105

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P380979

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380562

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: P380613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380617

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

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: P380883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380625

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

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: P380733

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P380377

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

Reference Method: EPA 8321B
 Batch ID: P380246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	73.2		P	40 - 150
AMPA	91.6		P	40 - 150
Endothall	113		P	40 - 150
Glufosinate	107		P	40 - 150
Glyphosate	120		P	40 - 140
Sucralose	97.5		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P380458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	105		P	30 - 160
Acetaminophen	70.3		P	30 - 160
Acetamiprid	81.0		P	30 - 160
Afidopyropen	84.1		P	30 - 160
Bentazon	72.5		P	30 - 160
Benzovindiflupyr	72.1		P	30 - 160
Carbamazepine	89.3		P	30 - 160
Clothianidin	74.9		P	30 - 160
Dinotefuran	73.4		P	30 - 160
Diuron	75.1		P	30 - 160
Fenuron	78.3		P	30 - 160
Fluridone	69.7		P	30 - 160
Hydrocodone	64.8		P	30 - 160
Ibuprofen	75.5		P	30 - 160
Imazapyr	83.4		P	30 - 160
Imidacloprid	86.3		P	30 - 160
Linuron	72.0		P	30 - 160
Mandestrobin	73.3		P	30 - 160
MCPP	95.7		P	30 - 160
Naproxen	74.5		P	30 - 160
Primidone	79.0		P	30 - 160
Pyraclostrobin	71.6		P	30 - 160
Thiamethoxam	85.0		P	30 - 160
Tolfenpyrad	51.1		P	30 - 160
Triclopyr	111		P	30 - 160

Reference Method: SM 2120 B-2011
 Batch ID: P380434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P380864

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

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P380562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163384	Chloride	95.7		P	90 - 110
2163476	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163477	Chloride	99.0		P	90 - 110
2163649	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163384	Sulfate	96.9		P	90 - 110
2163476	Sulfate	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163477	Sulfate	98.9		P	90 - 110
2163649	Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163479	Ammonia-N	99.0	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163542	Kjeldahl Nitrogen	98.7	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163478	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163479	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P380246

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

Reference Method: EPA 8321B
Batch ID: P380246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163209	Acesulfame K	128	139	P/P	40 - 150
2163209	AMPA	104	112	P/P	40 - 150
2163209	Endothall	122	138	P/P	40 - 150
2163209	Glufosinate	109	108	P/P	40 - 150
2163209	Glyphosate	109	109	P/P	40 - 140
2163209	Sucralose	99.4	99.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P380458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163321	Acetaminophen	82.8	72.8	P/P	30 - 160
2163321	Acetamiprid	84.6	69.5	P/P	30 - 160
2163321	Afidopyropen	120	115	P/P	30 - 160
2163321	Bentazon	27.3	29.7	F/F	30 - 160
2163321	Benzovindiflupyr	82.4	83.3	P/P	30 - 160
2163321	Carbamazepine	75.6	70.0	P/P	30 - 160
2163321	Clothianidin	68.6	89.2	P/P	30 - 160
2163321	Dinotefuran	97.6	104	P/P	30 - 160
2163321	Diuron	67.1	72.0	P/P	30 - 160
2163321	Fenuron	54.2	70.2	P/P	30 - 160
2163321	Fluridone	75.6	75.2	P/P	30 - 160
2163321	Hydrocodone	70.6	80.5	P/P	30 - 160
2163321	Ibuprofen	68.0	71.3	P/P	30 - 160
2163321	Imazapyr	63.7	67.3	P/P	30 - 160
2163321	Imidacloprid	142	152	P/P	30 - 160
2163321	Linuron	61.0	65.0	P/P	30 - 160
2163321	Mandestrobin	75.1	77.1	P/P	30 - 160
2163321	MCPP	96.0	102	P/P	30 - 160
2163321	Naproxen	78.9	78.0	P/P	30 - 160
2163321	Primidone	72.3	88.2	P/P	30 - 160
2163321	Pyraclostrobin	82.2	84.4	P/P	30 - 160
2163321	Thiamethoxam	109	125	P/P	30 - 160
2163321	Tolfenpyrad	75.9	75.0	P/P	30 - 160
2163321	Triclopyr	132	124	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163662	Fluoride	101	100	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2163385	Organic Carbon	96.6	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163476	Turbidity	1.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163384	Chloride	0.0160	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163649	Chloride	0.677	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163384	Sulfate	0.278	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163649	Sulfate	0.687	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163479	Ammonia-N	2.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163542	Kjeldahl Nitrogen	0.658	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163478	NO2NO3-N	0.303	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163479	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163388	Total-P	1.73	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163268	O-Phosphate-P	1.03	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P380246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163209	Acesulfame K	8.05	Spike	P	0 - 30
2163209	AMPA	7.07	Spike	P	0 - 30
2163209	Endothall	12.2	Spike	P	0 - 30
2163209	Glufosinate	0.846	Spike	P	0 - 30
2163209	Glyphosate	0.138	Spike	P	0 - 30
2163209	Sucralose	0.478	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P380458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163321	2,4-D	2.12	Spike	P	0 - 30
2163321	Acetaminophen	8.34	Spike	P	0 - 30
2163321	Acetamiprid	19.6	Spike	P	0 - 30
2163321	Afidopyropen	4.94	Spike	P	0 - 30
2163321	Bentazon	2.92	Spike	P	0 - 30
2163321	Benzovindiflupyr	1.08	Spike	P	0 - 30
2163321	Carbamazepine	7.73	Spike	P	0 - 30
2163321	Clothianidin	24.9	Spike	P	0 - 30
2163321	Dinotefuran	6.53	Spike	P	0 - 30
2163321	Diuron	7.03	Spike	P	0 - 30
2163321	Fenuron	25.7	Spike	P	0 - 30
2163321	Fluridone	0.527	Spike	P	0 - 30
2163321	Hydrocodone	13.1	Spike	P	0 - 30
2163321	Ibuprofen	4.75	Spike	P	0 - 30
2163321	Imazapyr	2.10	Spike	P	0 - 30
2163321	Imidacloprid	6.51	Spike	P	0 - 30
2163321	Linuron	6.27	Spike	P	0 - 30
2163321	Mandestrobin	2.63	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P380458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163321	MCP	6.38	Spike	P	0 - 30
2163321	Naproxen	1.18	Spike	P	0 - 30
2163321	Primidone	19.8	Spike	P	0 - 30
2163321	Pyraclostrobin	2.59	Spike	P	0 - 30
2163321	Thiamethoxam	13.4	Spike	P	0 - 30
2163321	Tolfenpyrad	1.18	Spike	P	0 - 30
2163321	Triclopyr	6.69	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P380434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163476	Color (true)	0.284	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P380864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163648	Total Alkalinity	0.484	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P381105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163256	TDS	5.10	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P380979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163269	TSS	3.64	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P380715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163662	Fluoride	0.992	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2163385	Organic Carbon	0.653	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: 2163491

Field Sample ID: G4NW0195

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	110	P	30 - 160
EPA 8321B	Acetaminophen-d4	94.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	92.2	P	30 - 160
EPA 8321B	Diuron-d6	89.3	P	30 - 160
EPA 8321B	Endothall-d6	129	P	30 - 160
EPA 8321B	Endothall-d6	129	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	104	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	104	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.8	P	30 - 160
EPA 8321B	Primidone-d5	84.5	P	30 - 160
EPA 8321B	Sucralose-d6	91.8	P	30 - 160
EPA 8321B	Sucralose-d6	91.8	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98096

Included Lab Sample IDs: 2163476, 2163477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	98.8	P/P	90 - 110
Chloride	98.9	98.8	P/P	90 - 110
Sulfate	99.2	99.3	P/P	90 - 110
Sulfate	99.5	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98103

Included Lab Sample IDs: 2163480, 2163481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.2	P/P	90 - 110
O-Phosphate-P	99.2	97.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98117

Included Lab Sample IDs: 2163476, 2163477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A98122

Included Lab Sample IDs: 2163476, 2163477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.6	102	P/P	90 - 115

Reference Method: EPA 8321B

Run ID: A98129

Included Lab Sample IDs: 2163491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	80.6	74.5	P/P	60 - 160
Endothall	133	134	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98157

Included Lab Sample IDs: 2163478

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

Reference Method: EPA 8321B

Run ID: A98160

Included Lab Sample IDs: 2163491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.2	100	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A98161

Included Lab Sample IDs: 2163491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	89.2	94.1	P/P	40 - 200
Glufosinate	108	103	P/P	40 - 200
Glyphosate	116	100	P/P	40 - 200

Reference Method: SM 5310 B-2011

Run ID: A98163

Included Lab Sample IDs: 2163478, 2163479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	97.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98214

Included Lab Sample IDs: 2163491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.6	75.3	P/P	50 - 150
Acetaminophen	92.3	89.6	P/P	60 - 160
Acetamiprid	108	94.0	P/P	50 - 150
Afidopyropen	129	114	P/P	50 - 150
Bentazon	118	129	P/P	50 - 160
Benzovindiflupyr	108	102	P/P	50 - 150
Carbamazepine	112	101	P/P	60 - 150
Clothianidin	98.9	79.4	P/P	60 - 150
Dinotefuran	92.1	86.2	P/P	50 - 150
Diuron	123	107	P/P	60 - 150
Fenuron	95.3	93.2	P/P	60 - 150
Fluridone	98.2	97.1	P/P	60 - 160
Hydrocodone	101	91.7	P/P	60 - 150
Ibuprofen	86.7	90.0	P/P	50 - 160
Imazapyr	100	82.8	P/P	50 - 150
Imidacloprid	98.8	94.9	P/P	60 - 150
Linuron	107	109	P/P	60 - 150
Mandestrobin	101	96.1	P/P	50 - 150
MCPP	70.5	68.0	P/P	50 - 150
Naproxen	95.7	135	P/P	50 - 160
Primidone	94.3	86.6	P/P	60 - 150
Pyraclostrobin	102	99.5	P/P	60 - 150
Thiamethoxam	107	93.8	P/P	50 - 150
Tolfenpyrad	113	116	P/P	60 - 150
Triclopyr	109	95.4	P/P	50 - 150

Reference Method: SM 4500 F-C-2011

Run ID: A98215

Included Lab Sample IDs: 2163476, 2163477

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98216

Included Lab Sample IDs: 2163479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98268

Included Lab Sample IDs: 2163478, 2163479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98269

Included Lab Sample IDs: 2163476, 2163477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98276

Included Lab Sample IDs: 2163478, 2163479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98369

Included Lab Sample IDs: 2163478, 2163479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	98.9	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					1.06	
EPA 300.0 Rev. 2.1	Chloride	99.3	95.7	97.8		0.0160	
	Chloride	98.8	99.7	99.0		0.677	
	Sulfate	99.2	96.9	98.4		0.278	
	Sulfate	99.1	99.2	98.9		0.687	
	Ammonia-N	99.8	99.0	102			2.73
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3	98.7	98.0			0.658
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	100	100			0.303
	NO2NO3-N	102	101	101			0.0
EPA 365.1 Rev. 2.0	Total-P	107					1.73
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101					1.03
EPA 8321B	2,4-D	105					2.12
	Acesulfame K	73.2	128	139			8.05
	Acetaminophen	70.3	82.8	72.8			8.34
	Acetamiprid	81.0	84.6	69.5			19.6
	Afidopyropen	84.1	120	115			4.94
	AMPA	91.6	104	112			7.07
	Bentazon	72.5	27.3	29.7			2.92
	Benzovindiflupyr	72.1	82.4	83.3			1.08
	Carbamazepine	89.3	75.6	70.0			7.73
	Clothianidin	74.9	68.6	89.2			24.9
	Dinotefuran	73.4	97.6	104			6.53
	Diuron	75.1	67.1	72.0			7.03
	Endothall	113	122	138			12.2
	Fenuron	78.3	54.2	70.2			25.7
	Fluridone	69.7	75.6	75.2			0.527
	Glufosinate	107	109	108			0.846
	Glyphosate	120	109	109			0.138
	Hydrocodone	64.8	70.6	80.5			13.1
	Ibuprofen	75.5	68.0	71.3			4.75
	Imazapyr	83.4	63.7	67.3			2.10
	Imidacloprid	86.3	142	152			6.51
	Linuron	72.0	61.0	65.0			6.27
	Mandestrobin	73.3	75.1	77.1			2.63
	MCPP	95.7	96.0	102			6.38
	Naproxen	74.5	78.9	78.0			1.18
	Primidone	79.0	72.3	88.2			19.8
	Pyraclostrobin	71.6	82.2	84.4			2.59
	Sucralose	97.5	99.4	99.9			0.478
	Thiamethoxam	85.0	109	125			13.4
	Tolfenpyrad	51.1	75.9	75.0			1.18
	Triclopyr	111	132	124			6.69
SM 2120 B-2011	Color (true)	99.9				0.284	
SM 2320 B-2011	Total Alkalinity	103				0.484	
SM 2540 C-2011	TDS					5.10	
SM 2540 D-2011	TSS					3.64	
SM 4500 F-C-2011	Fluoride	98.7	101	100			0.992
SM 5310 B-2011	Organic Carbon	96.2	96.6	95.6			0.653

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2163476, 2163477

Reference Method Descriptions

Method	Description	Associated Samples
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2163476, 2163477
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2163476, 2163477
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2163478, 2163479
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2163478, 2163479
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2163478, 2163479
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2163478, 2163479
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2163480, 2163481
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2163491
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2163491
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2163476, 2163477
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2163476, 2163477
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2163476, 2163477
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2163476, 2163477
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2163476, 2163477
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2163478, 2163479

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	03/10/2020			03/10/2020 16:49	Blanca Fach	2163476, 2163477
EPA 300.0 Rev. 2.1	03/10/2020			03/12/2020 14:47	Lipi Saha	2163476
	03/10/2020			03/12/2020 21:02	Lipi Saha	2163477
EPA 350.1 Rev. 2.0	03/10/2020			03/18/2020 11:51	Ping Hua	2163479
	03/10/2020			03/18/2020 11:57	Ping Hua	2163478
EPA 351.2 Rev. 2.0	03/10/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:06	Jhamieka S. Greenwood	2163478
	03/10/2020	03/19/2020 11:35	Sima Feizi	03/23/2020 08:07	Jhamieka S. Greenwood	2163479
EPA 353.2 Rev. 2.0	03/10/2020			03/12/2020 12:33	Beverly Y. Sanders	2163478
	03/10/2020			03/16/2020 10:40	Beverly Y. Sanders	2163479
EPA 365.1 Rev. 2.0	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 16:57	Benjamin T. Nordmann	2163478
	03/10/2020	03/16/2020 14:28	Yen Ta	03/17/2020 16:58	Benjamin T. Nordmann	2163479
EPA 365.1 Rev. 2.0 dissolved	03/10/2020			03/10/2020 16:41	Carlos Miranda	2163480
	03/10/2020			03/10/2020 16:46	Carlos Miranda	2163481
EPA 8321B	03/10/2020	03/10/2020 14:30	Rebecca Ware	03/10/2020 22:44	Rebecca Ware	2163491
	03/10/2020	03/10/2020 14:30	Rebecca Ware	03/11/2020 14:35	Rebecca Ware	2163491
	03/10/2020	03/10/2020 14:30	Rebecca Ware	03/12/2020 06:37	Rebecca Ware	2163491
	03/10/2020	03/12/2020 10:00	Hoor Shaik	03/15/2020 08:19	Juyoung Kim	2163491
SM 2120 B-2011	03/10/2020			03/10/2020 18:22		2163476
	03/10/2020			03/10/2020 18:23		2163477
SM 2320 B-2011	03/10/2020			03/18/2020 06:10	Dale L. Simmons	2163476
	03/10/2020			03/18/2020 06:16	Dale L. Simmons	2163477
SM 2540 C-2011	03/10/2020			03/13/2020 15:32	Yijie Li	2163476, 2163477
SM 2540 D-2011	03/10/2020			03/13/2020 15:32	Yijie Li	2163476, 2163477
SM 4500 F-C-2011	03/10/2020			03/13/2020 06:39	Dale L. Simmons	2163476
	03/10/2020			03/13/2020 06:47	Dale L. Simmons	2163477
SM 5310 B-2011	03/10/2020			03/12/2020 02:56	Lauren Lees	2163478
	03/10/2020			03/12/2020 03:12	Lauren Lees	2163479