

Chemical Analysis Report

NW-DIST-2020-01-23-01

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-2020-01-20-21**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 12-FEB-2020 09:22



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: Poverty Creek upstream of Poverty Creek Rd Collection Date/Time: 01/22/2020 10:05

Field ID: G4NW0427

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151169	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P377644	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P378043	
		Sulfate	3.6		mg SO4/L	P378046	
		Color (true)	18		PCU	P377637	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P377765	
	SM 2540 C-2011	TDS	15	U	mg/L	P378244	
	SM 2540 D-2011	TSS	7	I	mg/L	P377862	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P377768	
2151171	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P378179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P377990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P377935	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P377914	
	SM 5310 B-2011	Organic Carbon	3.0		mg C/L	P377836	
2151173	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P377647	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: POND CREEK @ CR 393

Collection Date/Time: 01/22/2020 11:45

Field ID: G4NW0195

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151184	EPA 8321B	2,4-D	0.0020	U	ug/L	P377677	
		Acesulfame K**	0.10	U	ug/L	P377652	
		AMPA**	0.10	U	ug/L	P377652	
		Sucralose**	0.24		ug/L	P377652	MS
		Acetaminophen**	0.0080	U	ug/L	P377677	
		Acetamiprid**	0.0020	U	ug/L	P377677	
		Endothall**	0.25	U	ug/L	P377652	MS
		Glufosinate**	0.10	U	ug/L	P377652	
		Glyphosate**	0.10	U	ug/L	P377652	
		Afidopyropen**	0.0020	UJ	ug/L	P377677	
		Bentazon	8.0E-04	U	ug/L	P377677	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P377677	
		Carbamazepine**	8.0E-04	U	ug/L	P377677	
		Clothianidin**	0.0020	U	ug/L	P377677	
		Dinotefuran**	0.0020	U	ug/L	P377677	
		Diuron	0.0020	U	ug/L	P377677	
		Fenuron	0.016	U	ug/L	P377677	
		Fluridone**	8.0E-04	U	ug/L	P377677	
		Imazapyr**	0.0040	U	ug/L	P377677	
		Hydrocodone**	0.0020	U	ug/L	P377677	
		Ibuprofen**	0.020	U	ug/L	P377677	
		Imidacloprid	0.0020	U	ug/L	P377677	
		Linuron	0.0040	U	ug/L	P377677	
		Mandestrobin**	0.0020	UJ	ug/L	P377677	
		MCPP	0.0020	U	ug/L	P377677	
		Naproxen**	0.0080	U	ug/L	P377677	
		Primidone**	0.0040	U	ug/L	P377677	
		Pyraclostrobin**	0.0020	U	ug/L	P377677	
		Thiamethoxam**	0.0020	U	ug/L	P377677	
		Tolfenpyrad**	0.0020	U	ug/L	P377677	
		Triclopyr**	0.0040	U	ug/L	P377677	

Ref. Method and Comment:

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

Sample Location: Horsehead Creek upstream of Steele Mill Creek Rd **Collection Date/Time: 01/22/2020 12:20**

Field ID: G4NW0428

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2151170	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P377644	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P378043	
		Sulfate	1.2		mg SO4/L	P378046	
	SM 2120 B-2011	Color (true)	65	A	PCU	P377637	
	SM 2320 B-2011	Total Alkalinity	4.4		mg CaCO3/L	P377765	
	SM 2540 C-2011	TDS	31		mg/L	P378245	
	SM 2540 D-2011	TSS	4	I	mg/L	P377863	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P377768	
2151172	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P378179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P377990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P377844	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P377914	
	SM 5310 B-2011	Organic Carbon	6.1		mg C/L	P377836	
2151174	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P377647	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377644

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378043

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378046

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378179

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377844

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377935

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377914

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377647

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: P377652

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: P377677

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

Reference Method: SM 2120 B-2011
Batch ID: P377637

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P377765

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P378244

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P378245

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P377862

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P377863

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P377768

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P377836

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: P378043

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378046

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377844

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377935

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377914

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377647

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

Reference Method: EPA 8321B
Batch ID: P377652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	131		P	40 - 150
AMPA	104		P	40 - 150
Endothall	82.9		P	40 - 150
Glufosinate	74.4		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P377652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	69.0		P	40 - 140
Sucralose	82.3		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P377677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	99.8		P	30 - 160
Acetaminophen	73.6		P	30 - 160
Acetamiprid	82.6		P	30 - 160
Afidopyropen	85.3		P	30 - 160
Bentazon	80.1		P	30 - 160
Benzovindiflupyr	87.1		P	30 - 160
Carbamazepine	98.4		P	30 - 160
Clothianidin	77.8		P	30 - 160
Dinotefuran	93.1		P	30 - 160
Diuron	77.5		P	30 - 160
Fenuron	102		P	30 - 160
Fluridone	92.4		P	30 - 160
Hydrocodone	83.2		P	30 - 160
Ibuprofen	81.9		P	30 - 160
Imazapyr	100		P	30 - 160
Imidacloprid	90.5		P	30 - 160
Linuron	80.0		P	30 - 160
Mandestrobin	91.2		P	30 - 160
MCPP	103		P	30 - 160
Naproxen	78.3		P	30 - 160
Primidone	76.8		P	30 - 160
Pyraclostrobin	98.8		P	30 - 160
Thiamethoxam	88.1		P	30 - 160
Tolfenpyrad	69.8		P	30 - 160
Triclopyr	76.7		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P377637

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

Reference Method: SM 2320 B-2011
Batch ID: P377765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P377768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P377836

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P378043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151149	Chloride	100		P	90 - 110
2151244	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P378046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151149	Sulfate	99.5		P	90 - 110
2151244	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P378179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151171	Ammonia-N	99.3	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P377844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151139	NO2NO3-N	97.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P377935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150778	NO2NO3-N	97.9	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P377914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151171	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P377647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151173	O-Phosphate-P	98.0	97.9	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P377652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2150765	Acesulfame K	51.1	51.4	P/P	40 - 150
2150765	AMPA	45.3	47.1	P/P	40 - 150
2150765	Endothall	146	185	P/F	40 - 150
2150765	Glufosinate	62.2	59.5	P/P	40 - 150
2150765	Glyphosate	73.4	68.9	P/P	40 - 140
2150765	Sucralose	15.9	16.3	F/F	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P377677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151184	2,4-D	120	101	P/P	30 - 160
2151184	Acetaminophen	87.9	76.0	P/P	30 - 160
2151184	Acetamiprid	92.7	86.4	P/P	30 - 160
2151184	Afidopyropen	102	92.1	P/P	30 - 160
2151184	Bentazon	49.3	48.2	P/P	30 - 160
2151184	Benzovindiflupyr	94.6	85.3	P/P	30 - 160
2151184	Carbamazepine	95.5	84.0	P/P	30 - 160
2151184	Clothianidin	87.4	84.6	P/P	30 - 160
2151184	Dinotefuran	120	102	P/P	30 - 160
2151184	Diuron	72.0	59.2	P/P	30 - 160
2151184	Fenuron	100	90.9	P/P	30 - 160
2151184	Fluridone	95.8	84.6	P/P	30 - 160
2151184	Hydrocodone	110	96.3	P/P	30 - 160
2151184	Ibuprofen	61.2	70.9	P/P	30 - 160
2151184	Imazapyr	112	103	P/P	30 - 160
2151184	Imidacloprid	146	132	P/P	30 - 160
2151184	Linuron	76.2	60.3	P/P	30 - 160
2151184	Mandestrobin	95.6	84.0	P/P	30 - 160
2151184	MCP	117	106	P/P	30 - 160
2151184	Naproxen	65.8	76.3	P/P	30 - 160
2151184	Primidone	109	93.1	P/P	30 - 160
2151184	Pyraclostrobin	105	94.0	P/P	30 - 160
2151184	Thiamethoxam	126	117	P/P	30 - 160
2151184	Tolfenpyrad	81.5	68.5	P/P	30 - 160
2151184	Triclopyr	110	88.2	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
 Batch ID: P377768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151043	Fluoride	98.6	98.6	P/P	89 - 106

Reference Method: SM 5310 B-2011
 Batch ID: P377836

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2151410	Organic Carbon	98.6	97.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151124	Turbidity	1.50	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151149	Chloride	0.722	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151149	Sulfate	0.936	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151171	Ammonia-N	2.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P377990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151125	Kjeldahl Nitrogen	6.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151139	NO2NO3-N	1.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P377935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150778	NO2NO3-N	0.402	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P377914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151171	Total-P	0.735	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151173	O-Phosphate-P	0.102	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P377652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2150765	Acesulfame K	0.560	Spike	P	0 - 30
2150765	AMPA	3.95	Spike	P	0 - 30
2150765	Endothall	23.3	Spike	P	0 - 30
2150765	Glufosinate	4.41	Spike	P	0 - 30
2150765	Glyphosate	6.35	Spike	P	0 - 30
2150765	Sucralose	2.24	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P377677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151184	2,4-D	17.2	Spike	P	0 - 30
2151184	Acetaminophen	14.4	Spike	P	0 - 30
2151184	Acetamiprid	7.04	Spike	P	0 - 30
2151184	Afidopyropen	10.6	Spike	P	0 - 30
2151184	Bentazon	2.15	Spike	P	0 - 30
2151184	Benzovindiflupyr	10.4	Spike	P	0 - 30
2151184	Carbamazepine	12.8	Spike	P	0 - 30
2151184	Clothianidin	3.36	Spike	P	0 - 30
2151184	Dinotefuran	16.1	Spike	P	0 - 30
2151184	Diuron	19.5	Spike	P	0 - 30
2151184	Fenuron	9.68	Spike	P	0 - 30
2151184	Fluridone	12.4	Spike	P	0 - 30
2151184	Hydrocodone	13.5	Spike	P	0 - 30
2151184	Ibuprofen	14.7	Spike	P	0 - 30
2151184	Imazapyr	8.31	Spike	P	0 - 30
2151184	Imidacloprid	10.0	Spike	P	0 - 30
2151184	Linuron	23.3	Spike	P	0 - 30
2151184	Mandestrobin	13.0	Spike	P	0 - 30
2151184	MCPP	9.78	Spike	P	0 - 30
2151184	Naproxen	14.8	Spike	P	0 - 30
2151184	Primidone	15.7	Spike	P	0 - 30
2151184	Pyraclostrobin	11.0	Spike	P	0 - 30
2151184	Thiamethoxam	7.01	Spike	P	0 - 30
2151184	Tolfenpyrad	17.3	Spike	P	0 - 30
2151184	Triclopyr	21.9	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P377637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151170	Color (true)	0.989	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
 Batch ID: P377765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151043	Total Alkalinity	0.451	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
 Batch ID: P378244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151138	TDS	0.830	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
 Batch ID: P378245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151433	TDS	0.317	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P377768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151043	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
 Batch ID: P377836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2151410	Organic Carbon	0.642	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2151184

Field Sample ID: G4NW0195

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	119	P	30 - 160
EPA 8321B	Acetaminophen-d4	70.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	76.8	P	30 - 160
EPA 8321B	Diuron-d6	58.3	P	30 - 160
EPA 8321B	Endothall-d6	135	P	30 - 160
EPA 8321B	Endothall-d6	135	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	65.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	65.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	69.0	P	30 - 160
EPA 8321B	Primidone-d5	93.1	P	30 - 160
EPA 8321B	Sucralose-d6	89.5	P	30 - 160
EPA 8321B	Sucralose-d6	89.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97076

Included Lab Sample IDs: 2151173, 2151174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.3	P/P	90 - 110
O-Phosphate-P	99.0	97.4	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A97077

Included Lab Sample IDs: 2151169, 2151170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97078

Included Lab Sample IDs: 2151169, 2151170

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

Reference Method: EPA 8321B

Run ID: A97116

Included Lab Sample IDs: 2151184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	86.6	85.3	P/P	60 - 160
Endothall	107	105	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A97134

Included Lab Sample IDs: 2151169, 2151170

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: A97134

Included Lab Sample IDs: 2151169, 2151170

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

Reference Method: EPA 8321B

Run ID: A97137

Included Lab Sample IDs: 2151184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	119	121	P/P	60 - 160
Glufosinate	80.2	65.1	P/P	60 - 160
Glyphosate	68.9	73.5	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97138

Included Lab Sample IDs: 2151172

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

Reference Method: SM 5310 B-2011

Run ID: A97159

Included Lab Sample IDs: 2151171, 2151172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.7	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97170

Included Lab Sample IDs: 2151169, 2151170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Chloride	99.6	99.9	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97178

Included Lab Sample IDs: 2151184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	79.6	92.7	P/P	50 - 150
Acetaminophen	84.7	81.4	P/P	60 - 160
Acetamiprid	89.1	103	P/P	50 - 150
Afidopyropen	110	107	P/P	50 - 150
Bentazon	92.5	88.9	P/P	50 - 160
Benzovindiflupyr	118	115	P/P	50 - 150
Carbamazepine	100	95.1	P/P	60 - 150
Clothianidin	105	84.6	P/P	60 - 150
Dinotefuran	83.1	98.6	P/P	50 - 150
Diuron	96.8	97.3	P/P	60 - 150
Fenuron	111	111	P/P	60 - 150
Fluridone	111	118	P/P	60 - 160
Hydrocodone	104	97.3	P/P	60 - 150
Ibuprofen	81.5	88.6	P/P	50 - 160
Imazapyr	97.6	108	P/P	50 - 150
Imidacloprid	99.6	95.3	P/P	60 - 150
Linuron	112	106	P/P	60 - 150
Mandestrobin	109	107	P/P	50 - 150
MCPP	101	108	P/P	50 - 150
Naproxen	86.5	124	P/P	50 - 160
Primidone	102	101	P/P	60 - 150
Pyraclostrobin	125	124	P/P	60 - 150
Thiamethoxam	101	94.2	P/P	50 - 150
Tolfenpyrad	133	128	P/P	60 - 150
Triclopyr	93.9	98.4	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97186

Included Lab Sample IDs: 2151171

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97234

Included Lab Sample IDs: 2151171, 2151172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97256

Included Lab Sample IDs: 2151171, 2151172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	108	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97273

Included Lab Sample IDs: 2151184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	82.3	83.2	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97280

Included Lab Sample IDs: 2151171, 2151172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	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					1.50	
EPA 300.0 Rev. 2.1	Chloride	101	100	101		0.722	
	Sulfate	102	99.5	99.1		0.936	
EPA 350.1 Rev. 2.0	Ammonia-N	96.7	99.3	102			2.36
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107					6.45
EPA 353.2 Rev. 2.0	NO2NO3-N	102	97.5	99.0			1.42
	NO2NO3-N	101	97.9	98.4			0.402
EPA 365.1 Rev. 2.0	Total-P	103	104	104			0.735
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.0	97.9			0.102
EPA 8321B	2,4-D	99.8	120	101			17.2
	Acesulfame K	131	51.1	51.4			0.560
	Acetaminophen	73.6	76.0	87.9			14.4
	Acetamiprid	82.6	86.4	92.7			7.04
	Afidopyropen	85.3	92.1	102			10.6
	AMPA	104	47.1	45.3			3.95
	Bentazon	80.1	49.3	48.2			2.15
	Benzovindiflupyr	87.1	85.3	94.6			10.4
	Carbamazepine	98.4	84.0	95.5			12.8
	Clothianidin	77.8	84.6	87.4			3.36
	Dinotefuran	93.1	102	120			16.1
	Diuron	77.5	59.2	72.0			19.5
	Endothall	82.9	146	185			23.3
	Fenuron	102	90.9	100			9.68
	Fluridone	92.4	84.6	95.8			12.4
	Glufosinate	74.4	62.2	59.5			4.41
	Glyphosate	69.0	73.4	68.9			6.35
	Hydrocodone	83.2	96.3	110			13.5
	Ibuprofen	81.9	61.2	70.9			14.7
	Imazapyr	100	112	103			8.31
	Imidacloprid	90.5	132	146			10.0
	Linuron	80.0	60.3	76.2			23.3
	Mandestrobin	91.2	84.0	95.6			13.0
	MCPP	103	117	106			9.78
	Naproxen	78.3	65.8	76.3			14.8
	Primidone	76.8	93.1	109			15.7
	Pyraclostrobin	98.8	94.0	105			11.0
	Sucralose	82.3	15.9	16.3			2.24
	Thiamethoxam	88.1	117	126			7.01
	Tolfenpyrad	69.8	68.5	81.5			17.3
	Triclopyr	76.7	110	88.2			21.9
SM 2120 B-2011	Color (true)	101				0.989	
SM 2320 B-2011	Total Alkalinity	102				0.451	
SM 2540 C-2011	TDS					0.830	
	TDS					0.317	
SM 4500 F-C-2011	Fluoride	97.0	98.6	98.6			0.0
SM 5310 B-2011	Organic Carbon	96.4	97.8	98.6			0.642

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2151169, 2151170

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2151169, 2151170
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2151169, 2151170
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2151171, 2151172
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2151171, 2151172
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2151171, 2151172
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2151171, 2151172
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2151173, 2151174
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2151184
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2151184
SM 2120 B-2011 / E31780	True Color measured at 450 nm (not valid for NPDES monitoring)	2151169, 2151170
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2151169, 2151170
SM 2540 C-2011 / E31780	Total Dissolved Solids in aqueous matrices	2151169, 2151170
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2151169, 2151170
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2151169, 2151170
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2151171, 2151172

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	01/23/2020			01/23/2020 16:14	Samantha Davila	2151169, 2151170
EPA 300.0 Rev. 2.1	01/23/2020			01/30/2020 04:44	Lipi Saha	2151169
	01/23/2020			01/30/2020 05:20	Lipi Saha	2151170
EPA 350.1 Rev. 2.0	01/23/2020			02/03/2020 13:13	Ping Hua	2151171
	01/23/2020			02/03/2020 13:14	Ping Hua	2151172
EPA 351.2 Rev. 2.0	01/23/2020	01/30/2020 17:30	Jhamieka S. Greenwood	01/31/2020 10:22	Jhamieka S. Greenwood	2151171
	01/23/2020	01/30/2020 17:30	Jhamieka S. Greenwood	01/31/2020 10:23	Jhamieka S. Greenwood	2151172
EPA 353.2 Rev. 2.0	01/23/2020			01/28/2020 11:48	Beverly Y. Sanders	2151172
	01/23/2020			01/29/2020 09:33	Beverly Y. Sanders	2151171
EPA 365.1 Rev. 2.0	01/23/2020	01/29/2020 15:35	Yen Ta	01/31/2020 13:35	Benjamin T. Nordmann	2151171, 2151172
EPA 365.1 Rev. 2.0 dissolved	01/23/2020			01/23/2020 15:49	Carlos Miranda	2151173
	01/23/2020			01/23/2020 16:12	Carlos Miranda	2151174
EPA 8321B	01/23/2020	01/24/2020 10:30	Rebecca Ware	01/24/2020 17:51	Rebecca Ware	2151184
	01/23/2020	01/24/2020 10:30	Rebecca Ware	01/27/2020 13:51	Rebecca Ware	2151184
	01/23/2020	01/24/2020 10:30	Rebecca Ware	01/29/2020 21:19	Rebecca Ware	2151184
	01/23/2020	01/27/2020 09:00	Hoor Shaik	01/29/2020 18:03	Juyoung Kim	2151184
SM 2120 B-2011	01/23/2020			01/23/2020 16:20	Madeline Funaro	2151169
	01/23/2020			01/23/2020 16:22	Madeline Funaro	2151170
SM 2320 B-2011	01/23/2020			01/28/2020 01:34	Dale L. Simmons	2151169
	01/23/2020			01/28/2020 01:46	Dale L. Simmons	2151170
SM 2540 C-2011	01/23/2020			01/27/2020 16:10	Sima Feizi	2151169, 2151170
SM 2540 D-2011	01/23/2020			01/27/2020 16:10	Sima Feizi	2151169, 2151170
SM 4500 F-C-2011	01/23/2020			01/28/2020 01:34	Dale L. Simmons	2151169
	01/23/2020			01/28/2020 01:46	Dale L. Simmons	2151170
SM 5310 B-2011	01/23/2020			01/28/2020 10:02	Madeline Funaro	2151171
	01/23/2020			01/28/2020 10:15	Madeline Funaro	2151172