

Chemical Analysis Report

SW-DIST-2019-12-27-02

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

Event Description: **Bellows Lake Outlet**

Request ID: **RQ-2019-12-23-35**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

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Date Certified: 17-JAN-2020 11:04



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: Bellows Lake Outlet

Collection Date/Time: 12/26/2019 09:50

Field ID: G1SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146282	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P377144	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P376812	
		Sulfate	5.8		mg SO4/L	P376816	
	SM 2120 B-2011	Color (true)	24	A	PCU	P376489	
	SM 2320 B-2011	Total Alkalinity	58		mg CaCO3/L	P376671	
	SM 2540 C-2011	TDS	104		mg/L	P376703	
	SM 2540 D-2011	TSS	21	I	mg/L	P376614	
2146285	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P376672	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P376740	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.1		mg N/L	P376669	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P376596	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P376656	
2146288	SM 5310 B-2011	Organic Carbon	18		mg C/L	P376571	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P376484	
2146298	EPA 8321B	2,4-D	0.028		ug/L	P376470	
		Acesulfame K**	0.10	U	ug/L	P376543	
		AMPA**	0.10	U	ug/L	P376543	
		Sucralose**	0.092		ug/L	P376543	
		Acetaminophen**	0.0080	U	ug/L	P376470	
		Acetamiprid**	0.0020	U	ug/L	P376470	
		Endothall**	0.25	U	ug/L	P376543	
		Glufosinate**	0.10	U	ug/L	P376543	
		Glyphosate**	0.10	U	ug/L	P376543	
		Afidopyropen**	0.0020	UJ	ug/L	P376470	
		Bentazon	8.3E-04	I	ug/L	P376470	MS
		Benzovindiflupyr**	0.0020	UJ	ug/L	P376470	
		Carbamazepine**	8.0E-04	U	ug/L	P376470	
		Clothianidin**	0.0020	U	ug/L	P376470	
		Dinotefuran**	0.0020	U	ug/L	P376470	
		Diuron	0.0046	I	ug/L	P376470	
		Fenuron	0.049	I	ug/L	P376470	
		Fluridone**	0.070		ug/L	P376470	
		Imazapyr**	0.031		ug/L	P376470	
		Hydrocodone**	0.0020	U	ug/L	P376470	
		Ibuprofen**	0.020	U	ug/L	P376470	
		Imidacloprid	0.019		ug/L	P376470	
		Linuron	0.0040	U	ug/L	P376470	
		Mandestrobin**	0.0020	UJ	ug/L	P376470	
		MCPD	0.0020	U	ug/L	P376470	
		Naproxen**	0.0080	U	ug/L	P376470	
		Primidone**	0.0040	U	ug/L	P376470	RPD
		Pyraclostrobin**	0.0020	U	ug/L	P376470	
		Thiamethoxam**	0.0020	U	ug/L	P376470	

Field ID: G1SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146298	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P376470	
		Triclopyr**	0.0040	U	ug/L	P376470	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

EPA 350.1 Rev. 2.0: The result was confirmed on 01/07/2020.

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

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

Sample Location: Bellows Lake Outlet

Collection Date/Time: 12/26/2019 09:55

Field ID: G1SW0060_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146283	EPA 180.1 Rev. 2.0	Turbidity	16		NTU	P377144	
	EPA 300.0 Rev. 2.1	Chloride	7.6		mg Cl/L	P376812	
		Sulfate	5.8		mg SO4/L	P376816	
	SM 2120 B-2011	Color (true)	25		PCU	P376489	
	SM 2320 B-2011	Total Alkalinity	58		mg CaCO3/L	P376671	
	SM 2540 C-2011	TDS	108		mg/L	P376703	
	SM 2540 D-2011	TSS	23	I	mg/L	P376614	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P376672	
2146286	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P376740	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.2		mg N/L	P376669	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P376596	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P376656	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P376571	
2146289	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P376484	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The PQL was elevated because of sample matrix interference.

EPA 350.1 Rev. 2.0: The result was confirmed on 01/07/2020.

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

Sample Location: Field_Blank

Collection Date/Time: 12/26/2019 10:00

Field ID: FB 12262019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146284	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P377144	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P376812	
		Sulfate	0.20	U	mg SO4/L	P376816	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P376487	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P376671	
	SM 2540 C-2011	TDS	15	U	mg/L	P376703	
	SM 2540 D-2011	TSS	2	U	mg/L	P376614	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P376672	
2146287	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P376740	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P376669	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P376596	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P376656	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P376571	
2146290	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P376484	

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: P377144

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376812

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376816

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376740

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376669

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376596

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376656

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376484

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

Reference Method: EPA 8321B
Batch ID: P376470

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P376470

Component	Result	Code	Units
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: P376543

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: P376487

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P376489

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P376671

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: P376703

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P376614

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P376672

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P376571

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: P376812

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376816

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376740

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376669

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376596

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376656

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376484

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

Reference Method: EPA 8321B
Batch ID: P376470

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	150		P	40 - 160
Acetaminophen	94.9		P	30 - 160
Acetamiprid	90.8		P	40 - 160
Afidopyropen	93.4		P	40 - 160
Bentazon	75.4		P	30 - 160
Benzovindiflupyr	102		P	40 - 160
Carbamazepine	78.8		P	40 - 160
Clothianidin	84.8		P	40 - 160
Dinotefuran	88.7		P	40 - 160
Diuron	75.9		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P376470

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	87.5		P	40 - 160
Fluridone	92.6		P	40 - 160
Hydrocodone	90.1		P	40 - 160
Ibuprofen	85.3		P	30 - 160
Imazapyr	116		P	40 - 160
Imidacloprid	97.9		P	40 - 160
Linuron	65.4		P	40 - 160
Mandestrobin	92.1		P	40 - 160
MCPP	139		P	40 - 160
Naproxen	92.7		P	40 - 160
Primidone	87.3		P	40 - 160
Pyraclostrobin	79.8		P	30 - 160
Thiamethoxam	97.6		P	40 - 160
Tolfenpyrad	51.4		P	40 - 160
Triclopyr	105		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P376543

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	108		P	40 - 150
AMPA	92.5		P	40 - 150
Endothall	68.8		P	40 - 150
Glufosinate	133		P	40 - 150
Glyphosate	105		P	40 - 140
Sucralose	103		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P376487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P376489

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

Reference Method: SM 2320 B-2011
Batch ID: P376671

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

Reference Method: SM 4500 F-C-2011
Batch ID: P376672

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P376571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146433	Chloride	96.7		P	90 - 110
2146495	Chloride	96.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146433	Sulfate	95.6		P	90 - 110
2146495	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146444	Ammonia-N	97.9	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146184	NO2NO3-N	97.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146188	Total-P	99.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146288	O-Phosphate-P	91.4	96.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P376470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146169	2,4-D	113	82.9	P/P	40 - 160
2146169	Acetaminophen	84.7	97.4	P/P	30 - 160
2146169	Acetamiprid	94.4	89.0	P/P	40 - 160
2146169	Afidopyropen	92.7	86.4	P/P	40 - 160
2146169	Bentazon	26.7	44.1	F/P	30 - 160
2146169	Benzovindiflupyr	91.5	91.2	P/P	40 - 160
2146169	Carbamazepine	78.0	83.4	P/P	40 - 160
2146169	Clothianidin	108	81.6	P/P	40 - 160
2146169	Dinotefuran	103	103	P/P	40 - 160
2146169	Diuron	66.3	69.2	P/P	40 - 160
2146169	Fenuron	69.9	61.3	P/P	40 - 160
2146169	Fluridone	77.0	77.4	P/P	40 - 160
2146169	Hydrocodone	101	103	P/P	40 - 160
2146169	Ibuprofen	70.2	64.4	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P376470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146169	Imidacloprid	139	131	P/P	40 - 160
2146169	Linuron	57.0	56.7	P/P	40 - 160
2146169	Mandestrobin	78.8	82.7	P/P	40 - 160
2146169	MCCP	118	109	P/P	40 - 160
2146169	Naproxen	76.5	80.7	P/P	40 - 160
2146169	Primidone	55.6	75.9	P/P	40 - 160
2146169	Pyraclostrobin	74.1	70.9	P/P	30 - 160
2146169	Thiamethoxam	134	139	P/P	40 - 160
2146169	Tolfenpyrad	51.1	48.8	P/P	40 - 160
2146169	Triclopyr	103	84.4	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P376543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146150	Acesulfame K	52.9	53.1	P/P	40 - 150
2146150	AMPA	99.5	90.5	P/P	40 - 150
2146150	Endothall	83.3	102	P/P	40 - 150
2146150	Glufosinate	118	111	P/P	40 - 150
2146150	Glyphosate	111	92.6	P/P	40 - 140
2146150	Sucralose	101	96.8	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P376672

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146437	Fluoride	99.1	99.1	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P376571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146159	Organic Carbon	97.8	97.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146158	Turbidity	0.829	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146433	Chloride	0.925	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146433	Sulfate	0.126	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146444	Ammonia-N	2.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146441	Kjeldahl Nitrogen	0.731	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146184	NO2NO3-N	0.261	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146188	Total-P	0.338	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146288	O-Phosphate-P	5.01	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P376470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146169	2,4-D	22.4	Spike	P	0 - 30
2146169	Acetaminophen	14.0	Spike	P	0 - 30
2146169	Acetamiprid	5.86	Spike	P	0 - 30
2146169	Afidopyropen	7.06	Spike	P	0 - 30
2146169	Bentazon	13.6	Spike	P	0 - 30
2146169	Benzovindiflupyr	0.247	Spike	P	0 - 30
2146169	Carbamazepine	6.71	Spike	P	0 - 30
2146169	Clothianidin	26.3	Spike	P	0 - 30
2146169	Dinotefuran	0.229	Spike	P	0 - 30
2146169	Diuron	3.54	Spike	P	0 - 30
2146169	Fenuron	13.1	Spike	P	0 - 30
2146169	Fluridone	0.295	Spike	P	0 - 30
2146169	Hydrocodone	1.67	Spike	P	0 - 30
2146169	Ibuprofen	8.64	Spike	P	0 - 30
2146169	Imazapyr	1.13	Spike	P	0 - 30
2146169	Imidacloprid	5.07	Spike	P	0 - 30
2146169	Linuron	0.426	Spike	P	0 - 30
2146169	Mandestrobin	4.77	Spike	P	0 - 30
2146169	MCPP	7.45	Spike	P	0 - 30
2146169	Naproxen	5.40	Spike	P	0 - 30
2146169	Primidone	30.8	Spike	F	0 - 30
2146169	Pyraclostrobin	4.40	Spike	P	0 - 30
2146169	Thiamethoxam	3.74	Spike	P	0 - 30
2146169	Tolfenpyrad	4.68	Spike	P	0 - 30
2146169	Triclopyr	19.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P376543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146150	Acesulfame K	0.331	Spike	P	0 - 30
2146150	AMPA	7.44	Spike	P	0 - 30
2146150	Endothall	20.4	Spike	P	0 - 30
2146150	Glufosinate	6.42	Spike	P	0 - 30
2146150	Glyphosate	15.3	Spike	P	0 - 30
2146150	Sucralose	1.34	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P376487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146163	Color (true)	12.0	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P376489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146282	Color (true)	1.36	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P376671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146437	Total Alkalinity	0.201	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P376703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146187	TDS	7.53	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P376672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146437	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P376571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146159	Organic Carbon	0.120	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2146298
Field Sample ID: G1SW0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	137	P	30 - 160
EPA 8321B	Acetaminophen-d4	79.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.0	P	30 - 160
EPA 8321B	Diuron-d6	57.9	P	30 - 160
EPA 8321B	Endothall-d6	50.2	P	30 - 160
EPA 8321B	Endothall-d6	50.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	79.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	79.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	74.4	P	30 - 160
EPA 8321B	Primidone-d5	69.6	P	30 - 160
EPA 8321B	Sucralose-d6	92.3	P	30 - 160
EPA 8321B	Sucralose-d6	92.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96592

Included Lab Sample IDs: 2146288, 2146289, 2146290

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.6	99.5	P/P	90 - 110
O-Phosphate-P	99.5	97.9	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A96593

Included Lab Sample IDs: 2146282, 2146283, 2146284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115
Color (true)	100	103	P/P	90 - 115

Reference Method: SM 5310 B-2011

Run ID: A96639

Included Lab Sample IDs: 2146285, 2146286, 2146287

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

Reference Method: EPA 8321B

Run ID: A96640

Included Lab Sample IDs: 2146298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	113	97.7	P/P	50 - 150
Acetaminophen	108	109	P/P	60 - 160
Acetamiprid	103	95.0	P/P	50 - 150
Afidopyropen	113	98.7	P/P	50 - 150
Bentazon	99.7	91.1	P/P	50 - 160
Benzovindiflupyr	113	112	P/P	50 - 150
Carbamazepine	96.7	95.9	P/P	60 - 150
Clothianidin	106	122	P/P	60 - 150
Dinotefuran	100	99.6	P/P	50 - 150
Diuron	108	107	P/P	60 - 150
Fenuron	110	107	P/P	60 - 150
Fluridone	106	110	P/P	60 - 160
Hydrocodone	115	91.6	P/P	60 - 150
Ibuprofen	89.6	100	P/P	50 - 160
Imazapyr	109	119	P/P	50 - 150
Imidacloprid	100	91.5	P/P	60 - 150
Linuron	92.1	92.1	P/P	60 - 150
Mandestrobin	110	108	P/P	50 - 150
MCPP	98.2	95.3	P/P	50 - 150
Naproxen	107	88.4	P/P	50 - 160
Primidone	106	107	P/P	60 - 150
Pyraclostrobin	107	109	P/P	60 - 150
Thiamethoxam	113	83.0	P/P	50 - 150
Tolfenpyrad	104	104	P/P	60 - 150
Triclopyr	104	107	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A96653

Included Lab Sample IDs: 2146298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	119	112	P/P	60 - 160
Endothall	80.0	88.5	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96666

Included Lab Sample IDs: 2146285, 2146286, 2146287

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A96676

Included Lab Sample IDs: 2146298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	61.8	63.8	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A96677

Included Lab Sample IDs: 2146298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Glufosinate	106	102	P/P	60 - 160
Glyphosate	85.8	92.4	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A96698

Included Lab Sample IDs: 2146298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	88.9	91.6	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A96714

Included Lab Sample IDs: 2146282, 2146283, 2146284

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

Reference Method: SM 4500 F-C-2011

Run ID: A96714

Included Lab Sample IDs: 2146282, 2146283, 2146284

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96755

Included Lab Sample IDs: 2146285, 2146286, 2146287

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96755

Included Lab Sample IDs: 2146285, 2146286, 2146287

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96766

Included Lab Sample IDs: 2146285, 2146286

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	108	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96770

Included Lab Sample IDs: 2146282, 2146283, 2146284

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96772

Included Lab Sample IDs: 2146287

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96789

Included Lab Sample IDs: 2146287

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96849

Included Lab Sample IDs: 2146285, 2146286

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96892

Included Lab Sample IDs: 2146282, 2146283, 2146284

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

* 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					0.829	
EPA 300.0 Rev. 2.1	Chloride	98.6	96.7	96.7		0.925	
	Sulfate	98.3	95.6	99.1		0.126	
EPA 350.1 Rev. 2.0	Ammonia-N	97.7	97.9	101			2.52
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					0.731
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	97.5	98.0			0.261
EPA 365.1 Rev. 2.0	Total-P	99.5	99.7	100			0.338
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	91.4	96.1			5.01
EPA 8321B	2,4-D	150	113	82.9			22.4
	Acesulfame K	108	52.9	53.1			0.331
	Acetaminophen	94.9	84.7	97.4			14.0
	Acetamiprid	90.8	94.4	89.0			5.86
	Afidopyropen	93.4	92.7	86.4			7.06
	AMPA	92.5	99.5	90.5			7.44
	Bentazon	75.4	26.7	44.1			13.6
	Benzovindiflupyr	102	91.5	91.2			0.247
	Carbamazepine	78.8	78.0	83.4			6.71
	Clothianidin	84.8	108	81.6			26.3
	Dinotefuran	88.7	103	103			0.229
	Diuron	75.9	66.3	69.2			3.54
	Endothall	68.8	83.3	102			20.4
	Fenuron	87.5	69.9	61.3			13.1
	Fluridone	92.6	77.0	77.4			0.295
	Glufosinate	133	118	111			6.42
	Glyphosate	105	111	92.6			15.3
	Hydrocodone	90.1	101	103			1.67
	Ibuprofen	85.3	70.2	64.4			8.64
	Imazapyr	116					1.13
	Imidacloprid	97.9	139	131			5.07
	Linuron	65.4	57.0	56.7			0.426
	Mandestrobin	92.1	78.8	82.7			4.77
	MCPP	139	118	109			7.45
	Naproxen	92.7	76.5	80.7			5.40
	Primidone	87.3	55.6	75.9			30.8
	Pyraclostrobin	79.8	74.1	70.9			4.40
	Sucralose	103	101	96.8			1.34
	Thiamethoxam	97.6	134	139			3.74
	Tolfenpyrad	51.4	51.1	48.8			4.68
	Triclopyr	105	103	84.4			19.6
SM 2120 B-2011	Color (true)	98.7				12.0	
	Color (true)	99.9				1.36	
SM 2320 B-2011	Total Alkalinity	103				0.201	
SM 2540 C-2011	TDS					7.53	
SM 4500 F-C-2011	Fluoride	98.5	99.1	99.1			0.0
SM 5310 B-2011	Organic Carbon	98.2	97.8	97.6			0.120

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2146282, 2146283, 2146284
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2146282, 2146283, 2146284

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2146282, 2146283, 2146284
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2146285, 2146286, 2146287
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2146285, 2146286, 2146287
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2146285, 2146286, 2146287
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2146285, 2146286, 2146287
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2146288, 2146289, 2146290
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2146298
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2146298
SM 2120 B-2011 / E31780	True Color measured at 450 nm	2146282, 2146283, 2146284
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2146282, 2146283, 2146284
SM 2540 C-2011 / E31780	Total Dissolved Solids in aqueous matrices	2146282, 2146283, 2146284
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2146282, 2146283, 2146284
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2146282, 2146283, 2146284
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2146285, 2146286, 2146287

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	12/27/2019			12/27/2019 15:08	Yen Ta	2146282, 2146283, 2146284
EPA 300.0 Rev. 2.1	12/27/2019			01/08/2020 20:38	Jhamieka S. Greenwood	2146282
	12/27/2019			01/08/2020 20:50	Jhamieka S. Greenwood	2146283
	12/27/2019			01/08/2020 21:02	Jhamieka S. Greenwood	2146284
EPA 350.1 Rev. 2.0	12/27/2019			01/07/2020 13:08	Ping Hua	2146285
	12/27/2019			01/07/2020 13:10	Ping Hua	2146286
	12/27/2019			01/07/2020 13:14	Ping Hua	2146287
EPA 351.2 Rev. 2.0	12/27/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/08/2020 15:22	Virginia P. Brown	2146285
	12/27/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/08/2020 15:23	Virginia P. Brown	2146286
	12/27/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/09/2020 16:30	Virginia P. Brown	2146287
EPA 353.2 Rev. 2.0	12/27/2019			01/03/2020 08:55	Beverly Y. Sanders	2146285
	12/27/2019			01/03/2020 08:56	Beverly Y. Sanders	2146286
	12/27/2019			01/03/2020 08:57	Beverly Y. Sanders	2146287
EPA 365.1 Rev. 2.0	12/27/2019	01/06/2020 14:41	Yen Ta	01/07/2020 17:24	Benjamin T. Nordmann	2146287
	12/27/2019	01/06/2020 14:41	Yen Ta	01/13/2020 17:13	Benjamin T. Nordmann	2146285
	12/27/2019	01/06/2020 14:41	Yen Ta	01/13/2020 17:14	Benjamin T. Nordmann	2146286
EPA 365.1 Rev. 2.0 dissolved	12/27/2019			12/27/2019 14:59	Samantha Davila	2146288
	12/27/2019			12/27/2019 15:10	Samantha Davila	2146290
	12/27/2019			12/27/2019 15:12	Samantha Davila	2146289
EPA 8321B	12/27/2019	12/30/2019 09:00	Hoor Shaik	12/31/2019 08:19	Juyoung Kim	2146298
	12/27/2019	12/30/2019 12:30	Mohammad Ghaffari	01/03/2020 14:56	Rebecca Ware	2146298
	12/27/2019	12/30/2019 12:30	Mohammad Ghaffari	12/30/2019 19:42	Rebecca Ware	2146298
	12/27/2019	12/30/2019 12:30	Mohammad Ghaffari	12/31/2019 16:58	Rebecca Ware	2146298
SM 2120 B-2011	12/27/2019			12/27/2019 15:18	Madeline Funaro	2146284
	12/27/2019			12/27/2019 15:34	Madeline Funaro	2146282, 2146283
SM 2320 B-2011	12/27/2019			01/07/2020 01:03	Dale L. Simmons	2146282
	12/27/2019			01/07/2020 01:16	Dale L. Simmons	2146283
	12/27/2019			01/07/2020 01:30	Dale L. Simmons	2146284
SM 2540 C-2011	12/27/2019			12/30/2019 14:10	Yijie Li	2146282, 2146283, 2146284
SM 2540 D-2011	12/27/2019			12/30/2019 14:10	Yijie Li	2146282, 2146283, 2146284
SM 4500 F-C-2011	12/27/2019			01/07/2020 01:03	Dale L. Simmons	2146282
	12/27/2019			01/07/2020 01:16	Dale L. Simmons	2146283
	12/27/2019			01/07/2020 01:30	Dale L. Simmons	2146284
SM 5310 B-2011	12/27/2019			12/30/2019 22:56	Madeline Funaro	2146285
	12/27/2019			12/30/2019 23:09	Madeline Funaro	2146286
	12/27/2019			12/30/2019 23:21	Madeline Funaro	2146287