

Chemical Analysis Report

CEN-DIST-2019-12-20-03

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

Event Description: **Roberts / Jane OC**
Request ID: **RQ-2019-12-30-19**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 14-JAN-2020 15:56



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: Lake Jane @ Center

Collection Date/Time: 12/19/2019 11:45

Field ID: G4CE0152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145995	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P376273	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P376811	
		Sulfate	15		mg SO4/L	P376815	
	SM 2120 B-2011	Color (true)	30		PCU	P376281	
	SM 2320 B-2011	Total Alkalinity	112		mg CaCO3/L	P376448	
	SM 2540 C-2011	TDS	170	A	mg/L	P376549	
	SM 2540 D-2011	TSS	9	IA	mg/L	P376538	
2145996	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P376450	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P376739	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P376666	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P376477	
	EPA 365.1 Rev. 2.0	Total-P	0.091		mg P/L	P376439	MS
2145997	SM 5310 B-2011	Organic Carbon	9.9		mg C/L	P376455	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P376301	

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: Roberts Branch @ Curryville Rd

Collection Date/Time: 12/19/2019 10:53

Field ID: G3CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145992	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P376273	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P376811	
		Sulfate	1.8		mg SO4/L	P376815	
	SM 2120 B-2011	Color (true)	330		PCU	P376281	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P376448	
	SM 2540 C-2011	TDS	102		mg/L	P376549	
	SM 2540 D-2011	TSS	2	I	mg/L	P376538	
2145993	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P376450	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P376739	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P376666	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P376477	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P376439	MS
2145994	SM 5310 B-2011	Organic Carbon	37		mg C/L	P376455	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P376301	
2146017	EPA 8321B	2,4-D	0.0020	U	ug/L	P376238	
		Acesulfame K**	0.10	U	ug/L	P376239	
		AMPA**	0.10	U	ug/L	P376239	
		Sucralose**	0.010	U	ug/L	P376239	
		Acetaminophen**	0.0080	U	ug/L	P376238	
		Acetamiprid**	0.0020	U	ug/L	P376238	
		Endothall**	0.25	U	ug/L	P376239	
		Glufosinate**	0.10	U	ug/L	P376239	
		Glyphosate**	0.10	U	ug/L	P376239	MS
		Afidopyropen**	0.0020	UJ	ug/L	P376238	RPD
		Bentazon	8.0E-04	U	ug/L	P376238	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P376238	
		Carbamazepine**	8.0E-04	U	ug/L	P376238	
		Clothianidin**	0.0020	U	ug/L	P376238	
		Dinotefuran**	0.0020	U	ug/L	P376238	
		Diuron	0.0020	U	ug/L	P376238	
		Fenuron	0.016	U	ug/L	P376238	
		Fluridone**	8.0E-04	U	ug/L	P376238	
		Imazapyr**	0.0040	U	ug/L	P376238	
		Hydrocodone**	0.0020	U	ug/L	P376238	
		Ibuprofen**	0.13		ug/L	P376238	
		Imidacloprid	0.0020	U	ug/L	P376238	
		Linuron	0.0040	U	ug/L	P376238	
		Mandestrobin**	0.0020	UJ	ug/L	P376238	
		MCP	0.0020	U	ug/L	P376238	
		Naproxen**	0.0080	U	ug/L	P376238	
		Primidone**	0.0040	U	ug/L	P376238	
		Pyraclostrobin**	0.0020	U	ug/L	P376238	
		Thiamethoxam**	0.0020	U	ug/L	P376238	

Field ID: G3CE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2146017	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P376238	
		Triclopyr**	0.0040	U	ug/L	P376238	

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.

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376273

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376811

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376666

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376439

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

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

Reference Method: EPA 8321B
Batch ID: P376238

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: P376238

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: P376239

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: P376281

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P376448

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

Reference Method: SM 2540 C-2011
Batch ID: P376549

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P376538

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P376450

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P376455

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: P376811

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376666

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

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: P376439

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

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

Reference Method: EPA 8321B
Batch ID: P376238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	133		P	40 - 160
Acetaminophen	74.2		P	30 - 160
Acetamiprid	79.0		P	40 - 160
Afidopyropen	77.2		P	40 - 160
Bentazon	66.7		P	30 - 160
Benzovindiflupyr	102		P	40 - 160
Carbamazepine	88.7		P	40 - 160
Clothianidin	85.9		P	40 - 160
Dinotefuran	76.7		P	40 - 160
Diuron	62.9		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P376238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	93.6		P	40 - 160
Fluridone	84.8		P	40 - 160
Hydrocodone	73.3		P	40 - 160
Ibuprofen	68.9		P	30 - 160
Imazapyr	87.9		P	40 - 160
Imidacloprid	92.7		P	40 - 160
Linuron	50.1		P	40 - 160
Mandestrobin	86.8		P	40 - 160
MCPP	157		P	40 - 160
Naproxen	74.2		P	40 - 160
Primidone	70.3		P	40 - 160
Pyraclostrobin	94.6		P	30 - 160
Thiamethoxam	88.9		P	40 - 160
Tolfenpyrad	68.7		P	40 - 160
Triclopyr	98.1		P	30 - 160

Reference Method: EPA 8321B

Batch ID: P376239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	118		P	40 - 150
AMPA	86.3		P	40 - 150
Endothall	119		P	40 - 150
Glufosinate	110		P	40 - 150
Glyphosate	130		P	40 - 140
Sucralose	98.4		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P376281

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P376448

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

Reference Method: SM 4500 F-C-2011

Batch ID: P376450

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-2011

Batch ID: P376455

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145829	Chloride	99.7		P	90 - 110
2145968	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145829	Sulfate	101		P	90 - 110
2145968	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145996	Ammonia-N	99.1	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145949	NO2NO3-N	96.2	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145903	Total-P	111	105	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145994	O-Phosphate-P	95.5	94.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P376238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145486	2,4-D	134	127	P/P	40 - 160
2145486	Acetaminophen	92.4	98.6	P/P	30 - 160
2145486	Acetamiprid	66.7	61.7	P/P	40 - 160
2145486	Afidopyropen	88.5	48.9	P/P	40 - 160
2145486	Bentazon	42.9	44.1	P/P	30 - 160
2145486	Benzovindiflupyr	104	96.9	P/P	40 - 160
2145486	Carbamazepine	78.1	68.2	P/P	40 - 160
2145486	Clothianidin	90.8	86.7	P/P	40 - 160
2145486	Dinotefuran	99.3	95.1	P/P	40 - 160
2145486	Diuron	59.8	56.3	P/P	40 - 160
2145486	Fenuron	76.8	80.8	P/P	40 - 160
2145486	Fluridone	78.1	75.2	P/P	40 - 160
2145486	Hydrocodone	100	81.7	P/P	40 - 160
2145486	Ibuprofen	61.0	62.0	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P376238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145486	Imidacloprid	149	145	P/P	40 - 160
2145486	Linuron	52.2	48.7	P/P	40 - 160
2145486	Mandestrobin	82.6	74.8	P/P	40 - 160
2145486	MCPP	147	139	P/P	40 - 160
2145486	Naproxen	66.7	60.7	P/P	40 - 160
2145486	Primidone	93.1	98.3	P/P	40 - 160
2145486	Pyraclostrobin	88.7	86.8	P/P	30 - 160
2145486	Thiamethoxam	104	106	P/P	40 - 160
2145486	Tolfenpyrad	61.5	62.8	P/P	40 - 160
2145486	Triclopyr	88.9	91.7	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P376239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2146115	Acesulfame K	45.1	50.4	P/P	40 - 150
2146115	AMPA	88.6	92.9	P/P	40 - 150
2146115	Endothall	122	126	P/P	40 - 150
2146115	Glufosinate	96.0	83.6	P/P	40 - 150
2146115	Glyphosate	152	139	F/P	40 - 140
2146115	Sucralose	91.7	95.6	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P376450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145948	Fluoride	98.4	97.8	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P376455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145834	Organic Carbon	95.8	97.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145992	Turbidity	5.61	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145829	Chloride	0.325	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145829	Sulfate	0.123	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145996	Ammonia-N	0.216	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145996	Kjeldahl Nitrogen	5.64	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145949	NO2NO3-N	0.371	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145903	Total-P	4.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145994	O-Phosphate-P	0.648	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P376238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145486	2,4-D	4.51	Spike	P	0 - 30
2145486	Acetaminophen	6.51	Spike	P	0 - 30
2145486	Acetamiprid	7.73	Spike	P	0 - 30
2145486	Afidopyropen	57.7	Spike	F	0 - 30
2145486	Bentazon	2.60	Spike	P	0 - 30
2145486	Benzovindiflupyr	7.14	Spike	P	0 - 30
2145486	Carbamazepine	13.4	Spike	P	0 - 30
2145486	Clothianidin	4.65	Spike	P	0 - 30
2145486	Dinotefuran	4.35	Spike	P	0 - 30
2145486	Diuron	5.60	Spike	P	0 - 30
2145486	Fenuron	5.20	Spike	P	0 - 30
2145486	Fluridone	1.98	Spike	P	0 - 30
2145486	Hydrocodone	20.3	Spike	P	0 - 30
2145486	Ibuprofen	1.70	Spike	P	0 - 30
2145486	Imazapyr	6.76	Spike	P	0 - 30
2145486	Imidacloprid	2.58	Spike	P	0 - 30
2145486	Linuron	6.91	Spike	P	0 - 30
2145486	Mandestrobin	9.90	Spike	P	0 - 30
2145486	MCPP	5.89	Spike	P	0 - 30
2145486	Naproxen	9.41	Spike	P	0 - 30
2145486	Primidone	5.43	Spike	P	0 - 30
2145486	Pyraclostrobin	2.11	Spike	P	0 - 30
2145486	Thiamethoxam	2.33	Spike	P	0 - 30
2145486	Tolfenpyrad	2.13	Spike	P	0 - 30
2145486	Triclopyr	3.17	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P376239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2146115	Acesulfame K	11.1	Spike	P	0 - 30
2146115	AMPA	4.84	Spike	P	0 - 30
2146115	Endothall	3.41	Spike	P	0 - 30
2146115	Glufosinate	13.9	Spike	P	0 - 30
2146115	Glyphosate	8.37	Spike	P	0 - 30
2146115	Sucralose	3.69	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P376281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145901	Color (true)	0.213	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P376448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145948	Total Alkalinity	0.0917	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P376549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145995	TDS	9.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P376450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145948	Fluoride	0.476	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P376455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145834	Organic Carbon	0.835	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2146017
Field Sample ID: G3CE0011

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	109	P	30 - 160
EPA 8321B	Acetaminophen-d4	97.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	87.4	P	30 - 160
EPA 8321B	Diuron-d6	75.4	P	30 - 160
EPA 8321B	Endothall-d6	66.0	P	30 - 160
EPA 8321B	Endothall-d6	66.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	87.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	87.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	83.7	P	30 - 160
EPA 8321B	Primidone-d5	81.9	P	30 - 160
EPA 8321B	Sucralose-d6	119	P	30 - 160
EPA 8321B	Sucralose-d6	119	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96514

Included Lab Sample IDs: 2145992, 2145995

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

Reference Method: SM 2120 B-2011

Run ID: A96516

Included Lab Sample IDs: 2145992, 2145995

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

Reference Method: EPA 8321B

Run ID: A96521

Included Lab Sample IDs: 2146017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	94.0	100	P/P	60 - 160
Endothall	115	110	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96528

Included Lab Sample IDs: 2145994, 2145997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	98.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A96534

Included Lab Sample IDs: 2146017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	91.7	98.3	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A96583

Included Lab Sample IDs: 2145992, 2145995

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

Reference Method: SM 4500 F-C-2011

Run ID: A96583

Included Lab Sample IDs: 2145992, 2145995

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

Reference Method: SM 5310 B-2011

Run ID: A96584

Included Lab Sample IDs: 2145993, 2145996

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

Reference Method: SM 5310 B-2011

Run ID: A96584

Included Lab Sample IDs: 2145993, 2145996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.8	P/P	90 - 110
Organic Carbon	101	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A96588

Included Lab Sample IDs: 2146017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	103	125	P/P	50 - 150
Acetaminophen	104	98.0	P/P	60 - 160
Acetamiprid	114	115	P/P	50 - 150
Afidopyropen	116	123	P/P	50 - 150
Bentazon	90.1	78.6	P/P	50 - 160
Benzovindiflupyr	119	121	P/P	50 - 150
Carbamazepine	98.3	111	P/P	60 - 150
Clothianidin	105	93.1	P/P	60 - 150
Dinotefuran	99.1	107	P/P	50 - 150
Diuron	111	97.6	P/P	60 - 150
Fenuron	114	111	P/P	60 - 150
Fluridone	116	116	P/P	60 - 160
Hydrocodone	113	110	P/P	60 - 150
Ibuprofen	120	134	P/P	50 - 160
Imazapyr	120	122	P/P	50 - 150
Imidacloprid	110	106	P/P	60 - 150
Linuron	101	97.1	P/P	60 - 150
Mandestrobin	120	118	P/P	50 - 150
MCPP	120	125	P/P	50 - 150
Naproxen	92.8	127	P/P	50 - 160
Primidone	101	116	P/P	60 - 150
Pyraclostrobin	125	127	P/P	60 - 150
Thiamethoxam	124	106	P/P	50 - 150
Tolfenpyrad	123	129	P/P	60 - 150
Triclopyr	125	116	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96590

Included Lab Sample IDs: 2145993, 2145996

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96642

Included Lab Sample IDs: 2145993, 2145996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	103	P/P	90 - 110
Total-P	105	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A96650

Included Lab Sample IDs: 2146017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	79.9	125	P/P	60 - 160
Glufosinate	95.4	81.4	P/P	60 - 160
Glyphosate	102	102	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96743

Included Lab Sample IDs: 2145993, 2145996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96755

Included Lab Sample IDs: 2145993, 2145996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.4	P/P	90 - 110
Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96770

Included Lab Sample IDs: 2145992, 2145995

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Sulfate	102	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					5.61	
EPA 300.0 Rev. 2.1	Chloride	103	99.7	99.3		0.325	
	Sulfate	103	101	100		0.123	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	99.1	99.5			0.216
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110					5.64
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	96.2	95.8			0.371
EPA 365.1 Rev. 2.0	Total-P	105	111	105			4.62
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	95.5	94.5			0.648
EPA 8321B	2,4-D	133	134	127			4.51
	Acesulfame K	118	45.1	50.4			11.1
	Acetaminophen	74.2	92.4	98.6			6.51
	Acetamiprid	79.0	66.7	61.7			7.73
	Afidopyropen	77.2	88.5	48.9			57.7
	AMPA	86.3	88.6	92.9			4.84
	Bentazon	66.7	42.9	44.1			2.60
	Benzovindiflupyr	102	104	96.9			7.14
	Carbamazepine	88.7	78.1	68.2			13.4
	Clothianidin	85.9	90.8	86.7			4.65
	Dinotefuran	76.7	99.3	95.1			4.35
	Diuron	62.9	59.8	56.3			5.60
	Endothall	119	122	126			3.41
	Fenuron	93.6	76.8	80.8			5.20
	Fluridone	84.8	78.1	75.2			1.98
	Glufosinate	110	96.0	83.6			13.9
	Glyphosate	130	152	139			8.37
	Hydrocodone	73.3	100	81.7			20.3
	Ibuprofen	68.9	61.0	62.0			1.70
	Imazapyr	87.9					6.76
	Imidacloprid	92.7	149	145			2.58
	Linuron	50.1	52.2	48.7			6.91
	Mandestrobin	86.8	82.6	74.8			9.90
	MCPP	157	147	139			5.89
	Naproxen	74.2	66.7	60.7			9.41
	Primidone	70.3	93.1	98.3			5.43
	Pyraclostrobin	94.6	88.7	86.8			2.11
	Sucralose	98.4	91.7	95.6			3.69
	Thiamethoxam	88.9	104	106			2.33
	Tolfenpyrad	68.7	61.5	62.8			2.13
	Triclopyr	98.1	88.9	91.7			3.17
SM 2120 B-2011	Color (true)	99.3				0.213	
SM 2320 B-2011	Total Alkalinity	102				0.0917	
SM 2540 C-2011	TDS					9.41	
SM 4500 F-C-2011	Fluoride	96.1	98.4	97.8			0.476
SM 5310 B-2011	Organic Carbon	97.6	95.8	97.4			0.835

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2145992, 2145995
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2145992, 2145995

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2145992, 2145995
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2145993, 2145996
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2145993, 2145996
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2145993, 2145996
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2145993, 2145996
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2145994, 2145997
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2146017
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2146017
SM 2120 B-2011 / E31780	True Color measured at 450 nm	2145992, 2145995
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2145992, 2145995
SM 2540 C-2011 / E31780	Total Dissolved Solids in aqueous matrices	2145992, 2145995
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2145992, 2145995
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2145992, 2145995
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2145993, 2145996

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	12/20/2019			12/20/2019 15:03	Yen Ta	2145992, 2145995
EPA 300.0 Rev. 2.1	12/20/2019			01/08/2020 10:10	Jhamieka S. Greenwood	2145992
	12/20/2019			01/08/2020 10:22	Jhamieka S. Greenwood	2145995
EPA 350.1 Rev. 2.0	12/20/2019			01/07/2020 12:31	Ping Hua	2145996
	12/20/2019			01/07/2020 12:47	Ping Hua	2145993
EPA 351.2 Rev. 2.0	12/20/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/07/2020 14:32	Virginia P. Brown	2145993
	12/20/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/07/2020 14:33	Virginia P. Brown	2145996
EPA 353.2 Rev. 2.0	12/20/2019			12/27/2019 11:56	Beverly Y. Sanders	2145993
	12/20/2019			12/27/2019 11:57	Beverly Y. Sanders	2145996
EPA 365.1 Rev. 2.0	12/20/2019	12/26/2019 15:49	Yen Ta	12/30/2019 13:09	Benjamin T. Nordmann	2145993
	12/20/2019	12/26/2019 15:49	Yen Ta	12/30/2019 13:12	Benjamin T. Nordmann	2145996
EPA 365.1 Rev. 2.0 dissolved	12/20/2019			12/20/2019 16:33	Virginia P. Brown	2145994, 2145997
EPA 8321B	12/20/2019	12/20/2019 16:00	Rebecca Ware	12/20/2019 22:29	Rebecca Ware	2146017
	12/20/2019	12/20/2019 16:00	Rebecca Ware	12/22/2019 14:54	Mohammad Ghaffari	2146017
	12/20/2019	12/20/2019 16:00	Rebecca Ware	12/24/2019 12:50	Mohammad Ghaffari	2146017
	12/20/2019	12/23/2019 10:00	Hoor Shaik	12/28/2019 14:41	Juyoung Kim	2146017
SM 2120 B-2011	12/20/2019			12/20/2019 16:15	Madeline Funaro	2145995
	12/20/2019			12/20/2019 16:51	Madeline Funaro	2145992
SM 2320 B-2011	12/20/2019			12/26/2019 20:13	Dale L. Simmons	2145992
	12/20/2019			12/26/2019 20:26	Dale L. Simmons	2145995
SM 2540 C-2011	12/20/2019			12/23/2019 16:45	Yijie Li	2145992, 2145995
SM 2540 D-2011	12/20/2019			12/23/2019 16:45	Yijie Li	2145992, 2145995
SM 4500 F-C-2011	12/20/2019			12/26/2019 20:13	Dale L. Simmons	2145992
	12/20/2019			12/26/2019 20:26	Dale L. Simmons	2145995
SM 5310 B-2011	12/20/2019			12/27/2019 04:56	Madeline Funaro	2145993
	12/20/2019			12/27/2019 05:35	Madeline Funaro	2145996