

Chemical Analysis Report

NW-DIST-2019-12-19-01

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

Event Description: **Pensacola monthly**
Request ID: **RQ-2019-12-16-20**
Customer: **NW-DIST**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
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Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 14-JAN-2020 09:31



NON-CONFORMANCE REPORT INCLUDED

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: Ten Mile Creek upstream of Pine Forest Road Collection Date/Time: 12/17/2019 11:30

Field ID: G5NW0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145491	EPA 180.1 Rev. 2.0	Turbidity	6.7	Q	NTU	P376171	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P376608	
		Sulfate	15		mg SO4/L	P376609	
		Color (true)	130	Q	PCU	P376196	
	SM 2320 B-2011	Total Alkalinity	6.7		mg CaCO3/L	P376377	
	SM 2540 C-2011	TDS	79		mg/L	P376547	
	SM 2540 D-2011	TSS	7	I	mg/L	P376536	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P376381	
2145492	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P376464	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P376753	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.088		mg N/L	P376476	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P376307	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P376454	
2145493	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P376180	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt.

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2120 B-2011: The sample expired upon receipt.

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

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Sandy Point Creek below Sandy Point Street

Collection Date/Time: 12/17/2019 12:15

Field ID: G4NW0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145498	EPA 8321B	2,4-D	0.0020	U	ug/L	P376238	
		Acesulfame K**	0.10	U	ug/L	P376159	
		AMPA**	0.10	U	ug/L	P376159	
		Sucralose**	0.26		ug/L	P376159	
		Acetaminophen**	0.0080	U	ug/L	P376238	
		Acetamiprid**	0.0020	U	ug/L	P376238	
		Endothall**	0.25	U	ug/L	P376159	
		Glufosinate**	0.10	U	ug/L	P376159	
		Glyphosate**	0.10	U	ug/L	P376159	
		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**	0.0051	I	ug/L	P376238	
		Hydrocodone**	0.0020	U	ug/L	P376238	
		Ibuprofen**	0.020	U	ug/L	P376238	
		Imidacloprid	0.0020	U	ug/L	P376238	
		Linuron	0.0040	U	ug/L	P376238	
		Mandestrobin**	0.0020	UJ	ug/L	P376238	
		MCPP	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	
		Tolfenpyrad**	0.0020	U	ug/L	P376238	
		Triclopyr**	0.0040	U	ug/L	P376238	

Ref. Method and Comment:

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.

Non-Conformance Report

NCR ID: 8081

Event(s)

NW-DIST-2019-12-19-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late by FedEx, samples received within the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 1/2/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376171

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376608

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376609

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376464

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376753

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376476

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376307

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376180

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

Reference Method: EPA 8321B
Batch ID: P376159

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P376159

Component	Result	Code	Units
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/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
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: P376196

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P376377

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

Reference Method: SM 2540 C-2011
Batch ID: P376547

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P376536

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P376381

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P376454

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: P376608

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376464

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376753

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376476

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: P376307

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376180

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

Reference Method: EPA 8321B
Batch ID: P376159

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	114		P	40 - 150
AMPA	96.6		P	40 - 150
Endothall	92.6		P	40 - 150
Glufosinate	92.9		P	40 - 150
Glyphosate	118		P	40 - 140
Sucralose	95.2		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

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
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: SM 2120 B-2011
Batch ID: P376196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P376377

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P376381

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P376454

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145491	Chloride	98.4		P	90 - 110
2145512	Chloride	94.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145491	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145421	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145513	Kjeldahl Nitrogen	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145456	NO2NO3-N	99.4	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145335	O-Phosphate-P	99.8	96.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P376159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145196	Acesulfame K	67.4	69.8	P/P	40 - 150
2145196	AMPA	108	116	P/P	40 - 150
2145196	Endothall	100	100	P/P	40 - 150
2145196	Glufosinate	88.9	105	P/P	40 - 150
2145196	Glyphosate	110	114	P/P	40 - 140
2145196	Sucralose	85.6	84.1	P/P	40 - 150

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

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	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
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: SM 4500 F-C-2011

Batch ID: P376381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145832	Fluoride	102	102	P/P	89 - 106

Reference Method: SM 5310 B-2011

Batch ID: P376454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145334	Organic Carbon	98.3	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145333	Turbidity	4.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145512	Chloride	0.0460	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145512	Sulfate	0.548	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145421	Ammonia-N	0.736	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145513	Kjeldahl Nitrogen	0.0647	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145456	NO2NO3-N	0.456	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145417	Total-P	0.375	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145335	O-Phosphate-P	2.91	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P376159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145196	Acesulfame K	3.56	Spike	P	0 - 30
2145196	AMPA	6.95	Spike	P	0 - 30
2145196	Endothall	0.169	Spike	P	0 - 30
2145196	Glufosinate	16.6	Spike	P	0 - 30
2145196	Glyphosate	3.81	Spike	P	0 - 30
2145196	Sucralose	1.71	Spike	P	0 - 30

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: SM 2120 B-2011
Batch ID: P376196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145512	Color (true)	1.95	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P376377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145832	Total Alkalinity	0.0199	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P376547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145251	TDS	5.24	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P376381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145832	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P376454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145334	Organic Carbon	0.963	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2145498

Field Sample ID: G4NW0080

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.1	P	30 - 160
EPA 8321B	Diuron-d6	76.0	P	30 - 160
EPA 8321B	Endothall-d6	59.0	P	30 - 160
EPA 8321B	Endothall-d6	59.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	74.1	P	30 - 160
EPA 8321B	Primidone-d5	90.7	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96471

Included Lab Sample IDs: 2145491

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96476

Included Lab Sample IDs: 2145493

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	96.8	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A96487

Included Lab Sample IDs: 2145491

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

Reference Method: EPA 8321B

Run ID: A96502

Included Lab Sample IDs: 2145498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	92.7	91.5	P/P	60 - 160
Endothall	99.7	91.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A96534

Included Lab Sample IDs: 2145498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	99.1	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A96559

Included Lab Sample IDs: 2145491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A96559

Included Lab Sample IDs: 2145491

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96575

Included Lab Sample IDs: 2145492

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A96584

Included Lab Sample IDs: 2145492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96586

Included Lab Sample IDs: 2145492

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

Reference Method: EPA 8321B

Run ID: A96588

Included Lab Sample IDs: 2145498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	120	103	P/P	50 - 150
Acetaminophen	101	104	P/P	60 - 160
Acetamiprid	117	114	P/P	50 - 150
Afidopyropen	117	116	P/P	50 - 150
Bentazon	71.1	90.1	P/P	50 - 160
Benzovindiflupyr	121	119	P/P	50 - 150
Carbamazepine	113	98.3	P/P	60 - 150
Clothianidin	114	105	P/P	60 - 150
Dinotefuran	91.2	99.1	P/P	50 - 150
Diuron	119	111	P/P	60 - 150
Fenuron	111	114	P/P	60 - 150
Fluridone	118	116	P/P	60 - 160
Hydrocodone	105	113	P/P	60 - 150
Ibuprofen	124	120	P/P	50 - 160
Imazapyr	122	120	P/P	50 - 150
Imidacloprid	110	110	P/P	60 - 150
Linuron	99.2	101	P/P	60 - 150
Mandestrobin	119	120	P/P	50 - 150
MCPD	129	120	P/P	50 - 150
Naproxen	120	92.8	P/P	50 - 160
Primidone	120	101	P/P	60 - 150
Pyraclostrobin	133	125	P/P	60 - 150
Thiamethoxam	94.5	124	P/P	50 - 150
Tolfenpyrad	129	123	P/P	60 - 150
Triclopyr	95.7	125	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96590

Included Lab Sample IDs: 2145492

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96634

Included Lab Sample IDs: 2145491

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

Reference Method: EPA 8321B

Run ID: A96650

Included Lab Sample IDs: 2145498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	88.7	93.6	P/P	60 - 160
Glufosinate	92.2	92.8	P/P	60 - 160
Glyphosate	114	101	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96789

Included Lab Sample IDs: 2145492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	100	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					4.06	
EPA 300.0 Rev. 2.1	Chloride	99.5	94.4	98.4		0.0460	
	Sulfate	98.7	96.3			0.548	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	101	102			0.736
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	106	106			0.0647
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.4	98.8			0.456
EPA 365.1 Rev. 2.0	Total-P	104					0.375
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.8	96.1			2.91
EPA 8321B	2,4-D	133	134	127			4.51
	Acesulfame K	114	67.4	69.8			3.56
	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	96.6	108	116			6.95
	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	92.6	100	100			0.169
	Fenuron	93.6	76.8	80.8			5.20
	Fluridone	84.8	78.1	75.2			1.98
	Glufosinate	92.9	88.9	105			16.6
	Glyphosate	118	110	114			3.81
	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	95.2	85.6	84.1			1.71
	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)	100				1.95	
SM 2320 B-2011	Total Alkalinity	104				0.0199	
SM 2540 C-2011	TDS					5.24	
SM 4500 F-C-2011	Fluoride	101	102	102			0.0
SM 5310 B-2011	Organic Carbon	100	98.3	100			0.963

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2145491
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2145491

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2145491
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2145492
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2145492
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2145492
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2145492
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2145493
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2145498
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2145498
SM 2120 B-2011 / E31780	True Color measured at 450 nm	2145491
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2145491
SM 2540 C-2011 / E31780	Total Dissolved Solids in aqueous matrices	2145491
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2145491
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2145491
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2145492

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	12/19/2019			12/19/2019 14:53	Yen Ta	2145491
EPA 300.0 Rev. 2.1	12/19/2019			01/02/2020 17:01	Jhamieka S. Greenwood	2145491
EPA 350.1 Rev. 2.0	12/19/2019			12/26/2019 16:55	Ping Hua	2145492
EPA 351.2 Rev. 2.0	12/19/2019	01/08/2020 13:00	Sima Feizi	01/09/2020 14:49	Virginia P. Brown	2145492
EPA 353.2 Rev. 2.0	12/19/2019			12/27/2019 11:28	Beverly Y. Sanders	2145492
EPA 365.1 Rev. 2.0	12/19/2019	12/23/2019 11:37	Yen Ta	12/26/2019 15:10	Benjamin T. Nordmann	2145492
EPA 365.1 Rev. 2.0 dissolved	12/19/2019			12/19/2019 16:06	Samantha Davila	2145493
EPA 8321B	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/19/2019 21:34	Rebecca Ware	2145498
	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/20/2019 19:05	Rebecca Ware	2145498
	12/19/2019	12/19/2019 16:00	Rebecca Ware	12/24/2019 08:39	Mohammad Ghaffari	2145498
	12/19/2019	12/23/2019 10:00	Hoor Shaik	12/28/2019 09:30	Juyoung Kim	2145498
SM 2120 B-2011	12/19/2019			12/19/2019 17:19	Madeline Funaro	2145491
SM 2320 B-2011	12/19/2019			12/24/2019 21:17	Dale L. Simmons	2145491
SM 2540 C-2011	12/19/2019			12/23/2019 16:45	Yijie Li	2145491
SM 2540 D-2011	12/19/2019			12/23/2019 16:45	Yijie Li	2145491
SM 4500 F-C-2011	12/19/2019			12/24/2019 21:17	Dale L. Simmons	2145491
SM 5310 B-2011	12/19/2019			12/26/2019 22:47	Madeline Funaro	2145492