

Chemical Analysis Report

SO-DIST-2019-08-16-02

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

Event Description: **2019 SMP : Runoff to Peace River**
Request ID: **RQ-2019-08-12-20**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Date Certified: 03-SEP-2019 10:52



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: Runoff to Peace River Site 3

Collection Date/Time: 08/15/2019 09:35

Field ID: G3SD0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112403	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P369213	
	EPA 300.0 Rev. 2.1	Chloride	5.2		mg Cl/L	P369535	
		Sulfate	2.1		mg SO4/L	P369538	
	SM 2120 B	Color (true)	530		PCU	P369256	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P369588	
	SM 2540 C-97	TDS	84		mg/L	P369730	
	SM 2540 D-97	TSS	6	I	mg/L	P369700	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P369591	
2112404	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P369755	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P369432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P369419	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P369321	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P369383	
2112405	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P369190	
2112413	EPA 8321B	2,4-D	0.0020	U	ug/L	P369393	
		Acesulfame K**	0.10	U	ug/L	P369340	
		AMPA**	0.23	I	ug/L	P369340	
		Sucralose**	0.010	U	ug/L	P369340	
		Acetaminophen**	0.0080	U	ug/L	P369393	
		Endothall**	0.25	U	ug/L	P369340	
		Acetamiprid**	0.0020	U	ug/L	P369393	
		Glufosinate**	0.10	U	ug/L	P369340	
		Glyphosate**	0.48		ug/L	P369340	
		Afidopyropen**	0.0020	UJ	ug/L	P369393	
		Bentazon	8.0E-04	U	ug/L	P369393	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369393	
		Carbamazepine**	8.0E-04	U	ug/L	P369393	
		Clothianidin**	0.0020	U	ug/L	P369393	
		Dinotefuran**	0.0020	U	ug/L	P369393	
		Diuron	0.0020	U	ug/L	P369393	
		Fenuron	0.016	U	ug/L	P369393	
		Fluridone**	8.0E-04	U	ug/L	P369393	
		Imazapyr**	0.0040	U	ug/L	P369393	
		Hydrocodone**	0.0020	U	ug/L	P369393	
		Ibuprofen**	0.020	U	ug/L	P369393	
		Imidacloprid	0.0020	U	ug/L	P369393	MS
		Linuron	0.0040	U	ug/L	P369393	
		Mandestrobin**	0.0020	UJ	ug/L	P369393	
		MCPD	0.0020	U	ug/L	P369393	
		Naproxen**	0.0080	U	ug/L	P369393	
		Primidone**	0.0040	U	ug/L	P369393	
		Pyraclostrobin**	0.0020	U	ug/L	P369393	
		Thiamethoxam**	0.0020	U	ug/L	P369393	MS

Field ID: G3SD0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112413	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P369393	
		Triclopyr**	0.0040	U	ug/L	P369393	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Runoff to Peace River Site 3

Collection Date/Time: 08/15/2019 09:40

Field ID: G3SD0132_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2112406	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P369213	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P369535	
		Sulfate	2.2		mg SO4/L	P369538	
		Color (true)	540		PCU	P369256	
	SM 2320 B-97	Total Alkalinity	9.4		mg CaCO3/L	P369588	
	SM 2540 C-97	TDS	87		mg/L	P369731	
	SM 2540 D-97	TSS	6	I	mg/L	P369701	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P369591	
2112407	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P369755	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P369419	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P369321	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P369383	
2112408	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P369190	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369213

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369535

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369538

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369432

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369419

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369321

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369190

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

Reference Method: EPA 8321B
Batch ID: P369340

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: P369340

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

Reference Method: EPA 8321B
Batch ID: P369393

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
Batch ID: P369256

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P369588

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

Reference Method: SM 2540 C-97
Batch ID: P369730

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P369731

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369700

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369701

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369591

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P369383

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: P369535

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369538

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369432

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369419

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: P369321

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369190

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

Reference Method: EPA 8321B
Batch ID: P369340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	148		P	40 - 150
AMPA	136		P	40 - 150
Endothall	98.5		P	40 - 150
Glufosinate	115		P	40 - 150
Glyphosate	114		P	40 - 140
Sucralose	84.1		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P369393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	94.0		P	40 - 160
Acetaminophen	80.1		P	30 - 160
Acetamiprid	84.7		P	40 - 160
Afidopyropen	90.3		P	40 - 160
Bentazon	94.0		P	30 - 160
Benzovindiflupyr	95.4		P	40 - 160
Carbamazepine	92.7		P	40 - 160
Clothianidin	83.2		P	40 - 160
Dinotefuran	92.0		P	40 - 160
Diuron	108		P	40 - 160
Fenuron	104		P	40 - 160
Fluridone	97.4		P	40 - 160
Hydrocodone	97.5		P	40 - 160
Ibuprofen	89.5		P	30 - 160
Imazapyr	109		P	40 - 160
Imidacloprid	108		P	40 - 160
Linuron	91.5		P	40 - 160
Mandestrobin	93.5		P	40 - 160
MCPP	103		P	40 - 160
Naproxen	89.3		P	40 - 160
Primidone	93.5		P	40 - 160
Pyraclostrobin	93.4		P	30 - 160
Thiamethoxam	103		P	40 - 160
Tolfenpyrad	59.6		P	40 - 160
Triclopyr	65.4		P	30 - 160

Reference Method: SM 2120 B
Batch ID: P369256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P369588

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

Reference Method: SM 4500 F-C-97
Batch ID: P369591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P369383

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	89.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112376	Chloride	98.2		P	90 - 110
2112635	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369538

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112376	Sulfate	101		P	90 - 110
2112635	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112601	Ammonia-N	101	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112377	Kjeldahl Nitrogen	102	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112364	NO2NO3-N	96.8	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112363	Total-P	109	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112292	O-Phosphate-P	98.0	99.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P369340

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112181	Acesulfame K	148	145	P/P	40 - 150
2112181	AMPA	106	115	P/P	40 - 150
2112181	Endothall	75.3	76.4	P/P	40 - 150
2112181	Glufosinate	84.7	92.1	P/P	40 - 150
2112181	Glyphosate	82.9	89.3	P/P	40 - 140
2112181	Sucralose	74.5	74.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P369393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112942	2,4-D	134	130	P/P	40 - 160
2112942	Acetaminophen	85.9	77.4	P/P	30 - 160
2112942	Acetamiprid	86.2	89.1	P/P	40 - 160
2112942	Afidopyropen	81.8	86.3	P/P	40 - 160
2112942	Benzovindiflupyr	94.3	93.4	P/P	40 - 160
2112942	Carbamazepine	97.0	94.1	P/P	40 - 160
2112942	Clothianidin	114	109	P/P	40 - 160
2112942	Diuron	105	107	P/P	40 - 160
2112942	Fenuron	91.1	83.6	P/P	40 - 160
2112942	Fluridone	101	92.1	P/P	40 - 160
2112942	Hydrocodone	99.9	88.0	P/P	40 - 160
2112942	Ibuprofen	90.9	90.1	P/P	30 - 160
2112942	Imidacloprid	206	198	F/F	40 - 160
2112942	Linuron	94.2	92.7	P/P	40 - 160
2112942	Mandestrobin	90.4	92.8	P/P	40 - 160
2112942	MCCP	153	141	P/P	40 - 160
2112942	Naproxen	98.7	109	P/P	40 - 160
2112942	Primidone	116	101	P/P	40 - 160
2112942	Pyraclostrobin	84.2	87.6	P/P	30 - 160
2112942	Thiamethoxam	166	153	F/P	40 - 160
2112942	Tolfenpyrad	50.4	50.6	P/P	40 - 160
2112942	Triclopyr	102	93.9	P/P	30 - 160

Reference Method: SM 4500 F-C-97
Batch ID: P369591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112212	Fluoride	95.0	95.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P369383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112364	Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112392	Turbidity	11.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112376	Chloride	0.185	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112601	Ammonia-N	2.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112377	Kjeldahl Nitrogen	4.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112364	NO2NO3-N	1.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112363	Total-P	3.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112292	O-Phosphate-P	1.22	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P369340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112181	Acesulfame K	2.61	Spike	P	0 - 30
2112181	AMPA	8.66	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P369340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112181	Endothall	1.42	Spike	P	0 - 30
2112181	Glufosinate	8.36	Spike	P	0 - 30
2112181	Glyphosate	7.41	Spike	P	0 - 30
2112181	Sucralose	0.324	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P369393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112942	2,4-D	3.32	Spike	P	0 - 30
2112942	Acetaminophen	10.4	Spike	P	0 - 30
2112942	Acetamiprid	3.25	Spike	P	0 - 30
2112942	Afidopyropen	5.40	Spike	P	0 - 30
2112942	Bentazon	7.75	Spike	P	0 - 30
2112942	Benzovindiflupyr	0.911	Spike	P	0 - 30
2112942	Carbamazepine	2.99	Spike	P	0 - 30
2112942	Clothianidin	4.95	Spike	P	0 - 30
2112942	Dinotefuran	4.22	Spike	P	0 - 30
2112942	Diuron	1.48	Spike	P	0 - 30
2112942	Fenuron	8.58	Spike	P	0 - 30
2112942	Fluridone	9.10	Spike	P	0 - 30
2112942	Hydrocodone	12.7	Spike	P	0 - 30
2112942	Ibuprofen	0.876	Spike	P	0 - 30
2112942	Imazapyr	4.49	Spike	P	0 - 30
2112942	Imidacloprid	4.01	Spike	P	0 - 30
2112942	Linuron	1.53	Spike	P	0 - 30
2112942	Mandestrobin	2.63	Spike	P	0 - 30
2112942	MCP	8.27	Spike	P	0 - 30
2112942	Naproxen	10.3	Spike	P	0 - 30
2112942	Primidone	13.6	Spike	P	0 - 30
2112942	Pyraclostrobin	3.96	Spike	P	0 - 30
2112942	Thiamethoxam	8.35	Spike	P	0 - 30
2112942	Tolfenpyrad	0.331	Spike	P	0 - 30
2112942	Triclopyr	7.89	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P369256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112165	Color (true)	6.22	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P369588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112212	Total Alkalinity	0.586	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P369730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112217	TDS	3.60	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P369731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112599	TDS	4.35	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P369591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112212	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P369383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112364	Organic Carbon	0.0258	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 2112413

Field Sample ID: G3SD0132

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	94.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	79.4	P	30 - 160
EPA 8321B	Diuron-d6	88.7	P	30 - 160
EPA 8321B	Endothall-d6	64.8	P	30 - 160
EPA 8321B	Endothall-d6	64.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	91.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	91.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	122	P	30 - 160
EPA 8321B	Primidone-d5	96.5	P	30 - 160
EPA 8321B	Sucralose-d6	75.1	P	30 - 160
EPA 8321B	Sucralose-d6	75.1	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93570

Included Lab Sample IDs: 2112405, 2112408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93576

Included Lab Sample IDs: 2112403, 2112406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A93598

Included Lab Sample IDs: 2112403, 2112406

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

Reference Method: SM 5310 B-00

Run ID: A93659

Included Lab Sample IDs: 2112404, 2112407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	93.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93674

Included Lab Sample IDs: 2112404, 2112407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	107	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93684

Included Lab Sample IDs: 2112404, 2112407

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

Reference Method: EPA 8321B

Run ID: A93708

Included Lab Sample IDs: 2112413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	115	152	P/P	60 - 160
Endothall	76.5	91.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A93710

Included Lab Sample IDs: 2112413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	133	124	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A93710

Included Lab Sample IDs: 2112413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Glufosinate	103	92.6	P/P	60 - 160
Glyphosate	102	101	P/P	60 - 160

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93717

Included Lab Sample IDs: 2112403, 2112406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	98.5	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93733

Included Lab Sample IDs: 2112404, 2112407

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

Reference Method: SM 2320 B-97

Run ID: A93749

Included Lab Sample IDs: 2112403, 2112406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	106	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93749

Included Lab Sample IDs: 2112403, 2112406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93816

Included Lab Sample IDs: 2112404, 2112407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	92.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93838

Included Lab Sample IDs: 2112413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.1	109	P/P	50 - 150
Acetaminophen	107	113	P/P	60 - 160
Acetamiprid	111	112	P/P	50 - 150
Afidopyrophen	119	115	P/P	50 - 150
Bentazon	102	101	P/P	50 - 160
Benzovindiflupyr	109	112	P/P	50 - 150
Carbamazepine	114	113	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A93838
Included Lab Sample IDs: 2112413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Clothianidin	101	114	P/P	60 - 150
Dinotefuran	102	106	P/P	50 - 150
Diuron	121	119	P/P	60 - 150
Fenuron	111	110	P/P	60 - 150
Fluridone	106	106	P/P	60 - 160
Hydrocodone	109	111	P/P	60 - 150
Ibuprofen	80.3	82.2	P/P	50 - 160
Imazapyr	105	109	P/P	50 - 150
Imidacloprid	105	107	P/P	60 - 150
Linuron	111	113	P/P	60 - 150
Mandestrobin	115	116	P/P	50 - 150
MCPP	99.8	99.5	P/P	50 - 150
Naproxen	106	113	P/P	50 - 160
Primidone	95.9	102	P/P	60 - 150
Pyraclostrobin	114	118	P/P	60 - 150
Thiamethoxam	106	106	P/P	50 - 150
Tolfenpyrad	107	108	P/P	60 - 150
Triclopyr	104	104	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A93859
Included Lab Sample IDs: 2112413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	76.0	77.7	P/P	60 - 160

* 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					11.0	
EPA 300.0 Rev. 2.1	Chloride	98.3	98.2	98.8		0.185	
	Sulfate	101	101	103			
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	98.4			2.40
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	102	97.1			4.57
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	96.8	98.2			1.37
EPA 365.1 Rev. 2.0	Total-P	107	109	105			3.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	98.0	99.2			1.22
EPA 8321B	2,4-D	94.0	134	130			3.32
	Acesulfame K	148	148	145			2.61
	Acetaminophen	80.1	85.9	77.4			10.4
	Acetamiprid	84.7	86.2	89.1			3.25
	Afidopyropen	90.3	81.8	86.3			5.40
	AMPA	136	106	115			8.66
	Bentazon	94.0					7.75
	Benzovindiflupyr	95.4	94.3	93.4			0.911
	Carbamazepine	92.7	97.0	94.1			2.99
	Clothianidin	83.2	114	109			4.95
	Dinotefuran	92.0					4.22
	Diuron	108	105	107			1.48
	Endothall	98.5	75.3	76.4			1.42
	Fenuron	104	91.1	83.6			8.58
	Fluridone	97.4	101	92.1			9.10
	Glufosinate	115	84.7	92.1			8.36
	Glyphosate	114	82.9	89.3			7.41
	Hydrocodone	97.5	99.9	88.0			12.7
	Ibuprofen	89.5	90.9	90.1			0.876
	Imazapyr	109					4.49
	Imidacloprid	108	206	198			4.01
	Linuron	91.5	94.2	92.7			1.53
	Mandestrobin	93.5	90.4	92.8			2.63
	MCCP	103	153	141			8.27
	Naproxen	89.3	98.7	109			10.3
	Primidone	93.5	116	101			13.6
	Pyraclostrobin	93.4	84.2	87.6			3.96
	Sucralose	84.1	74.5	74.2			0.324
	Thiamethoxam	103	166	153			8.35
	Tolfenpyrad	59.6	50.4	50.6			0.331
	Triclopyr	65.4	102	93.9			7.89
SM 2120 B	Color (true)	102				6.22	
SM 2320 B-97	Total Alkalinity	103				0.586	
SM 2540 C-97	TDS					3.60	
	TDS					4.35	
SM 4500 F-C-97	Fluoride	98.1	95.0	95.0			0.0
SM 5310 B-00	Organic Carbon	89.0	97.0				0.0258

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2112403, 2112406
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2112403, 2112406

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2112403, 2112406
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2112404, 2112407
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2112404, 2112407
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2112404, 2112407
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2112404, 2112407
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2112405, 2112408
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2112413
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2112413
SM 2120 B / E31780	True Color measured at 450 nm	2112403, 2112406
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2112403, 2112406
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2112403, 2112406
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2112403, 2112406
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2112403, 2112406
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2112404, 2112407

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	08/16/2019			08/16/2019 16:33	Samantha Davila	2112403, 2112406
EPA 300.0 Rev. 2.1	08/16/2019			08/22/2019 10:16	Julia Storbeck	2112403
	08/16/2019			08/22/2019 10:28	Julia Storbeck	2112406
EPA 350.1 Rev. 2.0	08/16/2019			08/27/2019 11:16	Ping Hua	2112404
	08/16/2019			08/27/2019 11:17	Ping Hua	2112407
EPA 351.2 Rev. 2.0	08/16/2019	08/21/2019 13:20	Jhamieka S. Greenwood	08/22/2019 15:20	Joseph Suarez	2112404
	08/16/2019	08/21/2019 13:20	Jhamieka S. Greenwood	08/22/2019 15:22	Joseph Suarez	2112407
EPA 353.2 Rev. 2.0	08/16/2019			08/21/2019 11:35	Beverly Y. Sanders	2112404
	08/16/2019			08/21/2019 11:36	Beverly Y. Sanders	2112407
EPA 365.1 Rev. 2.0	08/16/2019	08/20/2019 12:45	Lipi Saha	08/21/2019 12:07	Lipi Saha	2112404
	08/16/2019	08/20/2019 12:45	Lipi Saha	08/21/2019 12:08	Lipi Saha	2112407
EPA 365.1 Rev. 2.0 dissolved	08/16/2019			08/16/2019 12:09	Jhamieka S. Greenwood	2112405, 2112408
EPA 8321B	08/16/2019	08/21/2019 10:00	Rebecca Ware	08/21/2019 11:45	Rebecca Ware	2112413
	08/16/2019	08/21/2019 10:00	Rebecca Ware	08/21/2019 19:08	Rebecca Ware	2112413
	08/16/2019	08/21/2019 10:00	Rebecca Ware	08/28/2019 12:00	Rebecca Ware	2112413
	08/16/2019	08/22/2019 09:00	Fe-Val Siddell	08/24/2019 08:24	Juyoung Kim	2112413
SM 2120 B	08/16/2019			08/16/2019 17:24	Madeline Funaro	2112403
	08/16/2019			08/16/2019 17:25	Madeline Funaro	2112406
SM 2320 B-97	08/16/2019			08/23/2019 09:28	Dale L. Simmons	2112403
	08/16/2019			08/23/2019 09:39	Dale L. Simmons	2112406
SM 2540 C-97	08/16/2019			08/21/2019 14:21	Yijie Li	2112403, 2112406
SM 2540 D-97	08/16/2019			08/21/2019 14:21	Yijie Li	2112403, 2112406
SM 4500 F-C-97	08/16/2019			08/23/2019 09:28	Dale L. Simmons	2112403
	08/16/2019			08/23/2019 09:39	Dale L. Simmons	2112406
SM 5310 B-00	08/16/2019			08/21/2019 02:09	Madeline Funaro	2112404
	08/16/2019			08/21/2019 02:23	Madeline Funaro	2112407