

Chemical Analysis Report

SW-DIST-2018-04-11-01

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

Event Description: **Pinellas WBIDS By June**

Request ID: **RQ-2018-04-09-06**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

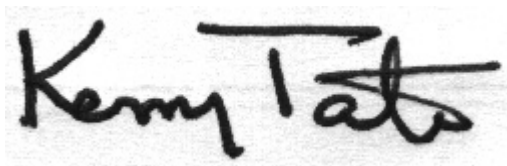
FL Dept. of Environmental Protection
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Attn: Ben Paswater

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 01-MAY-2018 10:40

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 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: Cedar Creek @ Pinehurst (PC 09-02)

Collection Date/Time: 04/10/2018 09:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983441	EPA 180.1 Rev. 2.0	Turbidity	1.7	A	NTU	P343258	
	EPA 300.0 Rev. 2.1	Chloride	150		mg Cl/L	P343434	
		Sulfate	25		mg SO4/L	P343437	
	SM 2120 B	Color (true)	68		PCU	P343211	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P343950	
	SM 2540 C-97	TDS	413		mg/L	P343620	
	SM 2540 D-97	TSS	3	I	mg/L	P343872	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P343853	
1983442	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P343686	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P343269	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P343567	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P343480	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P343324	
1983443	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P343217	

Ref. Method and Comment:

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

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Alligator Crk @ GlenOak

Collection Date/Time: 04/10/2018 10:20

Field ID: G1SW0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983451	EPA 8321B	2,4-D	0.026		ug/L	P343184	
		Bentazon	0.010		ug/L	P343184	
		MCP	0.0020	U	ug/L	P343184	
		Triclopyr**	0.0040	U	ug/L	P343184	
		Imidacloprid	0.021		ug/L	P343184	MS
		Diuron	0.0020	U	ug/L	P343184	
		Pyraclostrobin**	0.0020	U	ug/L	P343184	
		Primidone**	0.029		ug/L	P343184	
		Linuron	0.0040	U	ug/L	P343184	
		Acetaminophen**	0.0080	U	ug/L	P343184	
		Fenuron	0.016	U	ug/L	P343184	
		Imazapyr**	0.094		ug/L	P343184	
		Carbamazepine**	0.0041		ug/L	P343184	
		Fluridone**	0.030		ug/L	P343184	
		Hydrocodone**	8.0E-04	U	ug/L	P343184	
		Sucralose**	2.0		ug/L	P343272	
		Glyphosate**	1.1		ug/L	P343272	
		AMPA**	0.38	IJ	ug/L	P343272	MS
		Endothall**	0.10	U	ug/L	P343272	
		Glufosinate**	0.10	U	ug/L	P343272	

Ref. Method and Comment:

EPA 8321B: Refer to the narrative for an explanation of QC Codes.

Sample Location: Alligator Crk @ Old Coachman

Collection Date/Time: 04/10/2018 10:35

Field ID: G1SW0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983452	EPA 8321B	2,4-D	0.0052	I	ug/L	P343184	
		Bentazon	0.0089		ug/L	P343184	
		MCP	0.0020	U	ug/L	P343184	
		Triclopyr**	0.0040	U	ug/L	P343184	
		Imidacloprid	0.11		ug/L	P343184	MS
		Diuron	0.0030	I	ug/L	P343184	
		Pyraclostrobin**	0.0020	U	ug/L	P343184	
		Primidone**	0.046		ug/L	P343184	
		Linuron	0.0040	U	ug/L	P343184	
		Acetaminophen**	0.0080	U	ug/L	P343184	
		Fenuron	0.016	U	ug/L	P343184	
		Imazapyr**	0.050		ug/L	P343184	
		Carbamazepine**	0.0060		ug/L	P343184	
		Fluridone**	0.049		ug/L	P343184	
		Hydrocodone**	8.0E-04	U	ug/L	P343184	
		Sucralose**	2.4		ug/L	P343272	
		Glyphosate**	0.73		ug/L	P343272	
		AMPA**	0.20	I	ug/L	P343272	MS
		Endothal**	0.10	U	ug/L	P343272	
		Glufosinate**	0.10	U	ug/L	P343272	

Sample Location: Cedar Creek @ Pinehurst (PC 09-02)

Collection Date/Time: 04/10/2018 09:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983463	EPA 8321B	2,4-D	0.044		ug/L	P343184	
		Bentazon	0.048		ug/L	P343184	
		MCP	0.014		ug/L	P343184	
		Triclopyr**	0.0040	U	ug/L	P343184	
		Imidacloprid	0.14		ug/L	P343184	MS
		Diuron	0.0055	I	ug/L	P343184	
		Pyraclostrobin**	0.0020	U	ug/L	P343184	
		Primidone**	0.030		ug/L	P343184	
		Linuron	0.0040	U	ug/L	P343184	
		Acetaminophen**	0.0080	U	ug/L	P343184	
		Fenuron	0.016	U	ug/L	P343184	
		Imazapyr**	2.7		ug/L	P343184	
		Carbamazepine**	0.0038		ug/L	P343184	
		Fluridone**	8.0E-04	U	ug/L	P343184	
		Hydrocodone**	8.0E-04	U	ug/L	P343184	
		Sucralose**	1.7		ug/L	P343272	
		Glyphosate**	4.3		ug/L	P343272	
		AMPA**	0.80		ug/L	P343272	MS
		Endothal**	0.10	U	ug/L	P343272	
		Glufosinate**	0.10	U	ug/L	P343272	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343258

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343434

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343437

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343269

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343567

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343480

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

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

Reference Method: EPA 8321B
Batch ID: P343184

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P343184

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P343272

Component	Result	Code	Units
AMPA	0.10	U	ug/L
Endothall	0.10	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.10	U	ug/L

Reference Method: SM 2120 B
Batch ID: P343211

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343950

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

Reference Method: SM 2540 C-97
Batch ID: P343620

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343872

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343853

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P343324

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: P343434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343437

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343269

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: P343567

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343480

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

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

Reference Method: EPA 8321B
Batch ID: P343184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P343184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.5		P	40 - 150
Acetaminophen	91.0		P	30 - 150
Bentazon	68.4		P	30 - 150
Carbamazepine	80.4		P	40 - 150
Diuron	63.8		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	61.9		P	40 - 150
Hydrocodone	103		P	40 - 150
Imazapyr	65.5		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	72.0		P	40 - 150
MCPP	64.0		P	40 - 150
Primidone	106		P	40 - 150
Pyraclostrobin	69.2		P	40 - 150
Triclopyr	63.4		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P343272

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	81.1		P	40 - 140
Endothall	100		P	40 - 140
Glufosinate	68.5		P	40 - 140
Glyphosate	94.4		P	40 - 140
Sucralose	113		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P343950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
 Batch ID: P343853

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.1		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P343324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P343434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983244	Chloride	101		P	90 - 110
1983293	Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983244	Sulfate	98.3		P	90 - 110
1983293	Sulfate	93.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983414	Ammonia-N	98.5	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983442	Kjeldahl Nitrogen	101	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983415	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983334	O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P343184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983224	2,4-D	130	136	P/P	40 - 150
1983224	Acetaminophen	122	128	P/P	30 - 150
1983224	Bentazon	41.1	43.3	P/P	30 - 150
1983224	Carbamazepine	103	103	P/P	40 - 150
1983224	Diuron	79.4	73.3	P/P	40 - 150
1983224	Fenuron	111	108	P/P	40 - 150
1983224	Fluridone	61.8	70.7	P/P	40 - 150
1983224	Hydrocodone	147	141	P/P	40 - 150
1983224	Imazapyr	89.8	74.8	P/P	40 - 150
1983224	Imidacloprid	248	245	F/F	40 - 160
1983224	Linuron	89.4	88.5	P/P	40 - 150
1983224	MCP	96.0	99.7	P/P	40 - 150
1983224	Primidone	130	122	P/P	40 - 150
1983224	Pyraclostrobin	75.5	75.8	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P343184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983224	Triclopyr	92.0	96.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983451	AMPA	34.7	35.8	F/F	40 - 140
1983451	Endothall	113	112	P/P	40 - 140
1983451	Glufosinate	92.3	92.6	P/P	40 - 140
1983451	Glyphosate	61.1	61.9	P/P	40 - 140
1983451	Sucralose	60.7	59.3	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P343853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983677	Fluoride	96.7	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982017	Organic Carbon	98.7	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983441	Turbidity	5.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983244	Chloride	0.573	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983244	Sulfate	0.423	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983414	Ammonia-N	2.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983442	Kjeldahl Nitrogen	3.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983365	NO2NO3-N	0.137	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983415	Total-P	1.80	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983334	O-Phosphate-P	0.300	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P343184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983224	2,4-D	4.71	Spike	P	0 - 30
1983224	Acetaminophen	4.60	Spike	P	0 - 30
1983224	Bentazon	5.22	Spike	P	0 - 30
1983224	Carbamazepine	0.542	Spike	P	0 - 30
1983224	Diuron	8.02	Spike	P	0 - 30
1983224	Fenuron	2.41	Spike	P	0 - 30
1983224	Fluridone	13.5	Spike	P	0 - 30
1983224	Hydrocodone	4.30	Spike	P	0 - 30
1983224	Imazapyr	15.4	Spike	P	0 - 30
1983224	Imidacloprid	1.39	Spike	P	0 - 30
1983224	Linuron	0.996	Spike	P	0 - 30
1983224	MCP	3.82	Spike	P	0 - 30
1983224	Primidone	6.33	Spike	P	0 - 30
1983224	Pyraclostrobin	0.414	Spike	P	0 - 30
1983224	Triclopyr	4.67	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P343272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983451	AMPA	2.07	Spike	P	0 - 30
1983451	Endothall	0.886	Spike	P	0 - 30
1983451	Glufosinate	0.325	Spike	P	0 - 30
1983451	Glyphosate	0.691	Spike	P	0 - 30
1983451	Sucralose	0.882	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P343211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983425	Color (true)	1.07	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P343950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984545	Total Alkalinity	0.310	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983339	TDS	1.95	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P343853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983677	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982017	Organic Carbon	0.367	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

Quality Assurance Report Surrogates

Lab Sample ID: 1983451
Field Sample ID: G1SW0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	96.6	P	30 - 160
EPA 8321B	2,4-D-d3	96.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	78.1	P	30 - 160
EPA 8321B	Diuron-d6	78.1	P	30 - 160
EPA 8321B	Endothall-d6	75.2	P	40 - 160
EPA 8321B	Endothall-d6	75.2	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	60.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	60.6	P	40 - 160
EPA 8321B	Primidone-d5	144	P	30 - 160
EPA 8321B	Primidone-d5	144	P	30 - 160
EPA 8321B	Sucralose-d6	57.7	P	40 - 160
EPA 8321B	Sucralose-d6	57.7	P	40 - 160

Lab Sample ID: 1983452
Field Sample ID: G1SW0062

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	96.3	P	30 - 160
EPA 8321B	2,4-D-d3	96.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	147	P	30 - 160
EPA 8321B	Acetaminophen-d4	147	P	30 - 160
EPA 8321B	Carbamazepine-d10	121	P	30 - 160
EPA 8321B	Carbamazepine-d10	121	P	30 - 160
EPA 8321B	Diuron-d6	82.5	P	30 - 160
EPA 8321B	Diuron-d6	82.5	P	30 - 160
EPA 8321B	Endothall-d6	84.4	P	40 - 160
EPA 8321B	Endothall-d6	84.4	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	55.0	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	55.0	P	40 - 160
EPA 8321B	Primidone-d5	144	P	30 - 160
EPA 8321B	Primidone-d5	144	P	30 - 160
EPA 8321B	Sucralose-d6	59.1	P	40 - 160
EPA 8321B	Sucralose-d6	59.1	P	40 - 160

Lab Sample ID: 1983463
Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	103	P	30 - 160
EPA 8321B	2,4-D-d3	103	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	77.7	P	30 - 160
EPA 8321B	Diuron-d6	77.7	P	30 - 160
EPA 8321B	Endothall-d6	88.5	P	40 - 160
EPA 8321B	Endothall-d6	88.5	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1983463
Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Glyphosate 13C 15N	65.0	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	65.0	P	40 - 160
EPA 8321B	Primidone-d5	148	P	30 - 160
EPA 8321B	Primidone-d5	148	P	30 - 160
EPA 8321B	Sucralose-d6	63.9	P	40 - 160
EPA 8321B	Sucralose-d6	63.9	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A83166
Included Lab Sample IDs: 1983441

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83169
Included Lab Sample IDs: 1983443

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83184
Included Lab Sample IDs: 1983441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A83208
Included Lab Sample IDs: 1983442

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83234
Included Lab Sample IDs: 1983441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.1	P/P	90 - 110
Sulfate	102	99.3	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A83252
Included Lab Sample IDs: 1983451, 1983452, 1983463

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

Reference Method: EPA 8321B

Run ID: A83252

Included Lab Sample IDs: 1983451, 1983452, 1983463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	90.0	86.4	P/P	60 - 150
Endothall	101	96.6	P/P	60 - 150
Glufosinate	96.6	103	P/P	60 - 150
Glyphosate	124	121	P/P	60 - 150
Sucralose	113	115	P/P	60 - 130

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83263

Included Lab Sample IDs: 1983442

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

Reference Method: EPA 8321B

Run ID: A83283

Included Lab Sample IDs: 1983451, 1983452, 1983463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.6	101	P/P	50 - 150
Acetaminophen	106	99.1	P/P	60 - 150
Bentazon	79.3	83.8	P/P	50 - 150
Carbamazepine	103	102	P/P	60 - 150
Diuron	105	103	P/P	60 - 150
Fenuron	118	113	P/P	60 - 150
Fluridone	102	100	P/P	60 - 160
Hydrocodone	109	108	P/P	60 - 150
Imazapyr	87.7	72.9	P/P	50 - 150
Imazapyr	99.2	84.5	P/P	50 - 150
Imidacloprid	104	113	P/P	60 - 150
Linuron	112	110	P/P	60 - 150
MCPP	94.2	106	P/P	50 - 150
Primidone	117	111	P/P	60 - 150
Pyraclostrobin	105	101	P/P	60 - 150
Triclopyr	96.4	98.1	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83287

Included Lab Sample IDs: 1983442

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83314

Included Lab Sample IDs: 1983442

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83326

Included Lab Sample IDs: 1983442

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

Reference Method: SM 4500 F-C-97

Run ID: A83392

Included Lab Sample IDs: 1983441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83420

Included Lab Sample IDs: 1983441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	102	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					5.19	
EPA 300.0 Rev. 2.1	Chloride	98.9	101	96.3		0.573	
	Sulfate	98.0	98.3	93.7		0.423	
EPA 350.1 Rev. 2.0	Ammonia-N	95.9	98.5	95.1			2.03
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	94.9			3.80
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100					0.137
EPA 365.1 Rev. 2.0	Total-P	101	101	103			1.80
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	99.9	100			0.300
EPA 8321B	2,4-D	78.5	130	136			4.71
	Acetaminophen	91.0	122	128			4.60
	AMPA	81.1	34.7	35.8			2.07
	Bentazon	68.4	41.1	43.3			5.22
	Carbamazepine	80.4	103	103			0.542
	Diuron	63.8	79.4	73.3			8.02
	Endothall	100	113	112			0.886
	Fenuron	110	111	108			2.41
	Fluridone	61.9	61.8	70.7			13.5
	Glufosinate	68.5	92.3	92.6			0.325
	Glyphosate	94.4	61.1	61.9			0.691
	Hydrocodone	103	147	141			4.30
	Imazapyr	65.5	89.8	74.8			15.4
	Imidacloprid	104	248	245			1.39
	Linuron	72.0	89.4	88.5			0.996
	MCP	64.0	96.0	99.7			3.82
	Primidone	106	130	122			6.33

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Pyraclostrobin	69.2	75.5	75.8		0.414
	Sucralose	113	60.7	59.3		0.882
	Triclopyr	63.4	92.0	96.4		4.67
SM 2120 B	Color (true)				1.07	
SM 2320 B-97	Total Alkalinity	101			0.310	
SM 2540 C-97	TDS				1.95	
SM 4500 F-C-97	Fluoride	95.1	96.7	97.4		0.473
SM 5310 B-00	Organic Carbon	101	98.7	99.2		0.367

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1983441
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1983441
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1983441
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1983442
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1983442
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1983442
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1983442
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1983443
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1983451, 1983452, 1983463
SM 2120 B / E31780	True Color measured at 450 nm	1983441
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1983441
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1983441
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1983441
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1983441
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1983442

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	04/11/2018			04/11/2018 17:57	William L. Brown IV	1983441
EPA 300.0 Rev. 2.1	04/11/2018			04/14/2018 01:52	Lipi Saha	1983441
EPA 350.1 Rev. 2.0	04/11/2018			04/17/2018 10:35	Ping Hua	1983442
EPA 351.2 Rev. 2.0	04/11/2018	04/12/2018 09:00	Adrian Shelby	04/13/2018 16:13	Joseph Suarez	1983442
EPA 353.2 Rev. 2.0	04/11/2018			04/17/2018 13:13	Lauren Bottorf	1983442
EPA 365.1 Rev. 2.0	04/11/2018	04/16/2018 13:16	Sima Feizi	04/18/2018 10:26	Beverly Y. Sanders	1983442
EPA 365.1 Rev. 2.0 dissolved	04/11/2018			04/11/2018 16:23	Megan Treadwell	1983443
EPA 8321B	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 08:19	Julie Michelle Frank	1983451
	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 08:53	Julie Michelle Frank	1983452
	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 09:28	Julie Michelle Frank	1983463
	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 23:53	Julie Michelle Frank	1983451
	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/15/2018 00:28	Julie Michelle Frank	1983452
	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/15/2018 01:02	Julie Michelle Frank	1983463
	04/11/2018	04/13/2018 10:00	Hoor Shaik	04/16/2018 14:43	Julie Michelle Frank	1983463
	04/11/2018	04/13/2018 12:00	Hoor Shaik	04/13/2018 21:11	S. M. Reddy	1983451
	04/11/2018	04/13/2018 12:00	Hoor Shaik	04/13/2018 21:26	S. M. Reddy	1983452
	04/11/2018	04/13/2018 12:00	Hoor Shaik	04/13/2018 21:42	S. M. Reddy	1983463
SM 2120 B	04/11/2018			04/11/2018 16:03	Tanya Welborn	1983441
SM 2320 B-97	04/11/2018			04/24/2018 00:25	Dale L. Simmons	1983441
SM 2540 C-97	04/11/2018			04/13/2018 15:23	Yijie Li	1983441
SM 2540 D-97	04/11/2018			04/13/2018 15:23	Yijie Li	1983441
SM 4500 F-C-97	04/11/2018			04/20/2018 22:08	Lauren Bottorf	1983441
SM 5310 B-00	04/11/2018			04/13/2018 06:55	Megan Treadwell	1983442