

Chemical Analysis Report

SO-DIST-2018-06-01-01

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

Event Description: **Wilderness Waterway**
Request ID: **RQ-2018-05-07-46**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Colin Wright, Program Administrator

Date Certified: 27-JUN-2018 15:24

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored background.

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: ENRE 11 at Huston Bay

Collection Date/Time: 05/31/2018 11:40

Field ID: G5SD0026

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996660	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P346284	
	SM 2320 B-97	Total Alkalinity	138		mg CaCO3/L	P346615	
	SM 2540 D-97	TSS	3	U	mg/L	P346449	
	SM 4500 F-C-97	Fluoride	0.78		mg F/L	P346619	
1996663	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P346695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P346536	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346331	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P346546	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P346585	
1996666	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P346288	

Ref. Method and Comment:

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

Sample Location: ENRE 9

Collection Date/Time: 05/31/2018 13:00

Field ID: G1SD0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996661	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P346284	
	SM 2320 B-97	Total Alkalinity	165		mg CaCO3/L	P346615	
	SM 2540 D-97	TSS	3	U	mg/L	P346449	
	SM 4500 F-C-97	Fluoride	0.86		mg F/L	P346619	
1996664	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P346695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P346536	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P346331	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P346546	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P346585	
1996667	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.061		mg P/L	P346288	
1996682	EPA 8321B	2,4-D	0.0020	U	ug/L	P346244	
		Bentazon	8.0E-04	U	ug/L	P346244	
		MCP	0.0020	U	ug/L	P346244	
		Triclopyr**	0.0040	U	ug/L	P346244	
		Imidacloprid	0.0020	U	ug/L	P346244	MS
		Diuron	0.0020	U	ug/L	P346244	
		Pyraclostrobin**	0.0020	U	ug/L	P346244	
		Primidone**	0.0040	U	ug/L	P346244	
		Linuron	0.0040	U	ug/L	P346244	
		Acetaminophen**	0.0080	U	ug/L	P346244	
		Fenuron	0.016	U	ug/L	P346244	
		Imazapyr**	0.0073	I	ug/L	P346244	
		Carbamazepine**	4.0E-04	U	ug/L	P346244	
		Fluridone**	4.0E-04	U	ug/L	P346244	
		Hydrocodone**	8.0E-04	U	ug/L	P346244	
		Naproxen**	0.0080	U	ug/L	P346244	
		Ibuprofen**	0.020	U	ug/L	P346244	
		Sucralose**	0.010	U	ug/L	P346245	
		Glyphosate**	0.10	UJ	ug/L	P346245	SUR
		AMPA**	0.10	UJ	ug/L	P346245	SUR
		Endothall**	0.10	U	ug/L	P346245	
		Glufosinate**	0.10	UJ	ug/L	P346245	SUR
		Acesulfame K**	0.10	U	ug/L	P346245	

Ref. Method and Comment:

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

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed in re-extraction.

Sample Location: BLANK_05302018

Collection Date/Time: 05/31/2018 13:05

Field ID: BLANK_05302018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996662	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P346284	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P346613	
	SM 2540 D-97	TSS	2	U	mg/L	P346735	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P346617	
1996665	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P346694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P346940	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346324	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P346545	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P346676	
1996668	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346286	

Ref. Method and Comment:

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346284

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346694

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346695

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346536

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346940

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346324

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346331

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346545

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346546

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346286

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346288

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

Reference Method: EPA 8321B
Batch ID: P346244

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
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	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
MCPP	0.0020	U	ug/L
Naproxen	0.0080	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: P346245

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
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	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P346613

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

Reference Method: SM 2320 B-97
Batch ID: P346615

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P346449

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P346735

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346617

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P346619

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346585

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P346676

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346694

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346695

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346536

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346940

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346324

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346331

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346545

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346546

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346288

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

Reference Method: EPA 8321B
Batch ID: P346244

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	65.9		P	40 - 150
Acetaminophen	117		P	30 - 150
Bentazon	77.3		P	30 - 150
Carbamazepine	105		P	40 - 150
Diuron	95.1		P	40 - 150
Fenuron	101		P	40 - 150
Fluridone	101		P	40 - 150
Hydrocodone	94.7		P	40 - 150
Ibuprofen	131		P	40 - 150
Imazapyr	86.4		P	40 - 150
Imidacloprid	125		P	40 - 160
Linuron	92.1		P	40 - 150
MCPP	117		P	40 - 150
Naproxen	149		P	40 - 150
Primidone	120		P	40 - 150
Pyraclostrobin	101		P	40 - 150
Triclopyr	109		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	113		P	40 - 140
AMPA	103		P	40 - 140
Endothall	91.8		P	40 - 140
Glufosinate	105		P	40 - 140
Glyphosate	119		P	40 - 140
Sucralose	116		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P346613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P346615

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P346617

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P346619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346585

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

Reference Method: SM 5310 B-00
Batch ID: P346676

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996712	Ammonia-N	98.6	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996506	Ammonia-N	94.2	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996506	Kjeldahl Nitrogen	107	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996688	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996505	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346545

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996688	Total-P	102	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996505	Total-P	101	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996521	O-Phosphate-P	97.5	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996666	O-Phosphate-P	94.7	96.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P346244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996578	2,4-D	59.0	45.5	P/P	40 - 150
1996578	Acetaminophen	113	117	P/P	30 - 150
1996578	Bentazon	65.3	60.6	P/P	30 - 150
1996578	Carbamazepine	99.4	98.2	P/P	40 - 150
1996578	Diuron	70.0	70.9	P/P	40 - 150
1996578	Fenuron	84.3	83.8	P/P	40 - 150
1996578	Fluridone	80.7	82.0	P/P	40 - 150
1996578	Hydrocodone	73.0	82.1	P/P	40 - 150
1996578	Ibuprofen	124	132	P/P	40 - 150
1996578	Imazapyr	58.8	61.4	P/P	40 - 150
1996578	Imidacloprid	199	189	F/F	40 - 160
1996578	Linuron	73.5	79.9	P/P	40 - 150
1996578	MCPP	141	138	P/P	40 - 150
1996578	Naproxen	138	139	P/P	40 - 150
1996578	Primidone	102	98.4	P/P	40 - 150
1996578	Pyraclostrobin	94.2	90.2	P/P	40 - 150
1996578	Triclopyr	129	135	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996311	Acesulfame K	137	115	P/P	40 - 140
1996311	AMPA	61.2	55.1	P/P	40 - 140
1996311	Endothall	122	121	P/P	40 - 140
1996311	Glufosinate	96.2	95.3	P/P	40 - 140
1996311	Glyphosate	115	105	P/P	40 - 140
1996311	Sucralose	123	116	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P346617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997172	Fluoride	97.0	99.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P346619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996503	Fluoride	94.1	92.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346585

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996231	Organic Carbon	95.6	96.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P346676

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996597	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996661	Turbidity	3.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996712	Ammonia-N	0.379	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996506	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996506	Kjeldahl Nitrogen	5.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997811	Kjeldahl Nitrogen	3.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996688	NO2NO3-N	1.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996505	NO2NO3-N	0.250	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346545

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996688	Total-P	4.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P346546

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996505	Total-P	2.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P346286

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996521	O-Phosphate-P	0.583	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P346288

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996666	O-Phosphate-P	2.05	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P346244

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996578	2,4-D	16.3	Spike	P	0 - 30
1996578	Acetaminophen	3.00	Spike	P	0 - 30
1996578	Bentazon	7.47	Spike	P	0 - 30
1996578	Carbamazepine	1.20	Spike	P	0 - 30
1996578	Diuron	0.523	Spike	P	0 - 30
1996578	Fenuron	0.572	Spike	P	0 - 30
1996578	Fluridone	1.66	Spike	P	0 - 30
1996578	Hydrocodone	11.8	Spike	P	0 - 30
1996578	Ibuprofen	5.96	Spike	P	0 - 30
1996578	Imazapyr	2.50	Spike	P	0 - 30
1996578	Imidacloprid	4.68	Spike	P	0 - 30
1996578	Linuron	8.33	Spike	P	0 - 30
1996578	MCP	2.29	Spike	P	0 - 30
1996578	Naproxen	0.673	Spike	P	0 - 30
1996578	Primidone	4.04	Spike	P	0 - 30
1996578	Pyraclostrobin	4.38	Spike	P	0 - 30
1996578	Triclopyr	4.50	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P346245

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996311	Acesulfame K	17.7	Spike	P	0 - 30
1996311	AMPA	5.49	Spike	P	0 - 30
1996311	Endothall	1.43	Spike	P	0 - 30
1996311	Glufosinate	0.871	Spike	P	0 - 30
1996311	Glyphosate	4.07	Spike	P	0 - 30
1996311	Sucralose	5.54	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P346613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997172	Total Alkalinity	1.46	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
 Batch ID: P346615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996503	Total Alkalinity	0.291	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
 Batch ID: P346617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997172	Fluoride	1.43	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P346619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996503	Fluoride	1.43	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P346585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996231	Organic Carbon	0.404	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P346676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996597	Organic Carbon	1.49	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: 1996682
Field Sample ID: G1SD0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	95.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	111	P	30 - 160
EPA 8321B	Carbamazepine-d10	116	P	30 - 160
EPA 8321B	Diuron-d6	68.6	P	30 - 160
EPA 8321B	Endothall-d6	62.9	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	1.16	F	40 - 160
EPA 8321B	Ibuprofen-d3	68.7	P	40 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	98.7	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84305

Included Lab Sample IDs: 1996660, 1996661, 1996662

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A84306

Included Lab Sample IDs: 1996666, 1996667, 1996668

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	97.9	P/P	90 - 110
O-Phosphate-P	99.7	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84329

Included Lab Sample IDs: 1996665

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84334

Included Lab Sample IDs: 1996663, 1996664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84402

Included Lab Sample IDs: 1996682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	115	88.4	P/P	60 - 150
AMPA	109	89.0	P/P	60 - 150
Endothall	128	115	P/P	60 - 150
Glufosinate	95.4	87.3	P/P	60 - 150
Glyphosate	108	89.6	P/P	60 - 150
Sucralose	93.5	83.4	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A84443

Included Lab Sample IDs: 1996663, 1996664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	94.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84454

Included Lab Sample IDs: 1996682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.1	88.3	P/P	50 - 150
Bentazon	109	109	P/P	50 - 150
Ibuprofen	101	97.5	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A84454

Included Lab Sample IDs: 1996682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
MCP	112	102	P/P	50 - 150
Naproxen	99.4	86.5	P/P	60 - 150
Triclopyr	108	99.8	P/P	50 - 160

Reference Method: SM 2320 B-97

Run ID: A84458

Included Lab Sample IDs: 1996660, 1996661, 1996662

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.8	P/P	90 - 110
Total Alkalinity	99.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A84458

Included Lab Sample IDs: 1996660, 1996661, 1996662

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110
Fluoride	97.6	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84460

Included Lab Sample IDs: 1996663, 1996664, 1996665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84488

Included Lab Sample IDs: 1996682

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	146	150	P/P	60 - 150
Carbamazepine	139	150	P/P	60 - 150
Diuron	136	123	P/P	60 - 150
Fenuron	102	108	P/P	60 - 150
Fluridone	134	133	P/P	60 - 160
Hydrocodone	109	114	P/P	60 - 150
Imazapyr	97.9	105	P/P	50 - 150
Imidacloprid	106	111	P/P	60 - 150
Linuron	147	140	P/P	60 - 150
Primidone	138	117	P/P	60 - 150
Pyraclostrobin	144	138	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A84491

Included Lab Sample IDs: 1996665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84494

Included Lab Sample IDs: 1996663, 1996664, 1996665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.4	P/P	90 - 110
Ammonia-N	100	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84520

Included Lab Sample IDs: 1996663, 1996664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	96.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84701

Included Lab Sample IDs: 1996665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	106	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					3.07	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	98.6	98.2			0.379
	Ammonia-N	101	94.2	97.9			1.91
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	107	99.0			5.82
	Kjeldahl Nitrogen	108					3.27
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	102			1.48
	NO2NO3-N	102	100				0.250
EPA 365.1 Rev. 2.0	Total-P	100	102	94.6			4.58
	Total-P	100	101	97.9			2.23
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	97.5	98.1			0.583
	O-Phosphate-P	99.4	94.7	96.8			2.05
EPA 8321B	2,4-D	65.9	59.0	45.5			16.3
	Acesulfame K	113	137	115			17.7
	Acetaminophen	117	113	117			3.00
	AMPA	103	55.1	61.2			5.49
	Bentazon	77.3	65.3	60.6			7.47
	Carbamazepine	105	99.4	98.2			1.20
	Diuron	95.1	70.0	70.9			0.523
	Endothall	91.8	122	121			1.43
	Fenuron	101	84.3	83.8			0.572
	Fluridone	101	80.7	82.0			1.66
	Glufosinate	105	95.3	96.2			0.871
	Glyphosate	119	105	115			4.07
	Hydrocodone	94.7	73.0	82.1			11.8
	Ibuprofen	131	124	132			5.96
	Imazapyr	86.4	58.8	61.4			2.50
	Imidacloprid	125	199	189			4.68
	Linuron	92.1	73.5	79.9			8.33
	MCPP	117	141	138			2.29
	Naproxen	149	138	139			0.673
	Primidone	120	102	98.4			4.04
	Pyraclostrobin	101	94.2	90.2			4.38
	Sucralose	116	123	116			5.54
	Triclopyr	109	129	135			4.50
SM 2320 B-97	Total Alkalinity	102				1.46	
	Total Alkalinity	103				0.291	
SM 4500 F-C-97	Fluoride	94.7	97.0	99.0			1.43
	Fluoride	95.6	94.1	92.2			1.43
SM 5310 B-00	Organic Carbon	97.0	95.6	96.0			0.404
	Organic Carbon	101	103				1.49

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1996660, 1996661, 1996662
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1996663, 1996664, 1996665
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1996663, 1996664, 1996665
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1996663, 1996664, 1996665
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1996663, 1996664, 1996665

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1996666, 1996667, 1996668
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1996682
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1996660, 1996661, 1996662
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1996660, 1996661, 1996662
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1996660, 1996661, 1996662
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1996663, 1996664, 1996665

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	06/01/2018			06/01/2018 16:16	Julia Storbeck	1996660, 1996661, 1996662
EPA 350.1 Rev. 2.0	06/01/2018			06/11/2018 14:17	Julia Storbeck	1996665
	06/01/2018			06/11/2018 15:52	Julia Storbeck	1996663
	06/01/2018			06/11/2018 15:53	Julia Storbeck	1996664
EPA 351.2 Rev. 2.0	06/01/2018	06/07/2018 11:15	Adrian Shelby	06/12/2018 11:49	Joseph Suarez	1996663
	06/01/2018	06/07/2018 11:15	Adrian Shelby	06/12/2018 11:50	Joseph Suarez	1996664
	06/01/2018	06/14/2018 16:00	Adrian Shelby	06/19/2018 14:47	Joseph Suarez	1996665
EPA 353.2 Rev. 2.0	06/01/2018			06/04/2018 12:14	Lauren Bottorf	1996665
	06/01/2018			06/04/2018 13:19	Lauren Bottorf	1996663
	06/01/2018			06/04/2018 13:20	Lauren Bottorf	1996664
EPA 365.1 Rev. 2.0	06/01/2018	06/07/2018 11:15	Sima Feizi	06/08/2018 12:05	Beverly Y. Sanders	1996665
	06/01/2018	06/07/2018 11:15	Sima Feizi	06/08/2018 12:19	Beverly Y. Sanders	1996663
	06/01/2018	06/07/2018 11:15	Sima Feizi	06/08/2018 12:20	Beverly Y. Sanders	1996664
EPA 365.1 Rev. 2.0 dissolved	06/01/2018			06/01/2018 16:11	Megan Treadwell	1996666
	06/01/2018			06/01/2018 16:25	Megan Treadwell	1996667
	06/01/2018			06/01/2018 16:26	Megan Treadwell	1996668
EPA 8321B	06/01/2018	06/01/2018 16:00	Hoor Shaik	06/05/2018 15:22	Mohammad Ghaffari	1996682
	06/01/2018	06/05/2018 12:00	Hoor Shaik	06/07/2018 08:29	Juyoung Kim	1996682
	06/01/2018	06/05/2018 12:00	Hoor Shaik	06/09/2018 11:08	Juyoung Kim	1996682
SM 2320 B-97	06/01/2018			06/07/2018 04:33	Dale L. Simmons	1996662
	06/01/2018			06/07/2018 12:29	Dale L. Simmons	1996660
	06/01/2018			06/07/2018 12:39	Dale L. Simmons	1996661
SM 2540 D-97	06/01/2018			06/04/2018 13:40	William L. Brown IV	1996660, 1996661
	06/01/2018			06/06/2018 15:03	Yijie Li	1996662
SM 4500 F-C-97	06/01/2018			06/07/2018 04:33	Dale L. Simmons	1996662
	06/01/2018			06/07/2018 11:38	Dale L. Simmons	1996660
	06/01/2018			06/07/2018 11:42	Dale L. Simmons	1996661
SM 5310 B-00	06/01/2018			06/07/2018 08:18	Megan Treadwell	1996663
	06/01/2018			06/07/2018 08:32	Megan Treadwell	1996664
	06/01/2018			06/08/2018 23:27	Megan Treadwell	1996665