

Chemical Analysis Report

SO-DIST-2018-05-10-01

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-2018-04-16-22**
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
Attn: Maryann Dugan

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

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

Date Certified: 04-JUN-2018 10:24

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: ENRE 11 at Huston Bay

Collection Date/Time: 05/09/2018 11:00

Field ID: G5SD0026

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991753	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P345062	
	SM 2320 B-97	Total Alkalinity	185		mg CaCO3/L	P345490	
	SM 2540 D-97	TSS	4	I	mg/L	P345422	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P345492	MS
1991755	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P345379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P345869	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345349	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P345334	MS
	SM 5310 B-00	Organic Carbon	11		mg C/L	P345360	
1991757	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345055	

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: 05/09/2018 12:20

Field ID: G1SD0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991754	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P345061	
	SM 2320 B-97	Total Alkalinity	158		mg CaCO3/L	P345490	
	SM 2540 D-97	TSS	3	UA	mg/L	P345422	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P345492	MS
1991756	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P345379	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P345869	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P345349	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P345334	MS
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P345360	
1991758	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P345055	

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: 05/09/2018 12:20

Field ID: G1SD0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991772	EPA 8321B	2,4-D	0.0020	U	ug/L	P344935	
		Bentazon	8.1E-04	I	ug/L	P344935	MS
		MCP	0.0020	U	ug/L	P344935	
		Triclopyr**	0.0040	U	ug/L	P344935	
		Imidacloprid	0.0020	U	ug/L	P344935	
		Diuron	0.0020	U	ug/L	P344935	MS
		Pyraclostrobin**	0.0020	U	ug/L	P344935	
		Primidone**	0.0040	U	ug/L	P344935	
		Linuron	0.0040	U	ug/L	P344935	
		Acetaminophen**	0.0080	U	ug/L	P344935	
		Fenuron	0.016	U	ug/L	P344935	

Field ID: G1SD0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1991772	EPA 8321B	Imazapyr**	0.0040	U	ug/L	P344935	
		Carbamazepine**	4.0E-04	U	ug/L	P344935	MS
		Fluridone**	5.3E-04	I	ug/L	P344935	
		Hydrocodone**	8.0E-04	U	ug/L	P344935	
		Naproxen**	0.0080	U	ug/L	P344936	
		Ibuprofen**	0.020	U	ug/L	P344936	
		Sucralose**	0.068		ug/L	P345005	
		Glyphosate**	0.10	UJ	ug/L	P345005	SUR
		AMPA**	0.10	UJ	ug/L	P345005	SUR
		Endothall**	0.10	U	ug/L	P345005	MS
		Glufosinate**	0.10	UJ	ug/L	P345005	SUR

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345061

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345062

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P345379

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P345869

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P345349

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P345334

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: P345055

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

Reference Method: EPA 8321B
Batch ID: P344935

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
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: P344936

Component	Result	Code	Units
Ibuprofen	0.020	U	ug/L
Naproxen	0.0080	U	ug/L

Reference Method: EPA 8321B
Batch ID: P345005

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	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P345490

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

Reference Method: SM 2540 D-97
Batch ID: P345422

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P345360

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: P345379

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345869

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345349

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: P345334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345055

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

Reference Method: EPA 8321B
Batch ID: P344935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	104		P	40 - 150
Acetaminophen	93.4		P	30 - 150
Bentazon	102		P	30 - 150
Carbamazepine	67.4		P	40 - 150
Diuron	65.0		P	40 - 150
Fenuron	107		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P344935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluridone	85.4		P	40 - 150
Hydrocodone	109		P	40 - 150
Imazapyr	103		P	40 - 150
Imidacloprid	113		P	40 - 160
Linuron	101		P	40 - 150
MCPP	109		P	40 - 150
Primidone	103		P	40 - 150
Pyraclostrobin	83.4		P	40 - 150
Triclopyr	109		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ibuprofen	103		P	40 - 150
Naproxen	99.6		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P345005

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	76.4		P	40 - 140
Endothall	136		P	40 - 140
Glufosinate	92.6		P	40 - 140
Glyphosate	99.9		P	40 - 140
Sucralose	109		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P345490

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

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991631	Ammonia-N	98.4	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991865	Kjeldahl Nitrogen	94.0	92.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991643	NO2NO3-N	96.2	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991865	Total-P	89.3	89.2	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991757	O-Phosphate-P	95.2	95.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P344935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990998	2,4-D	74.1	71.4	P/P	40 - 150
1990998	Acetaminophen	71.6	72.9	P/P	30 - 150
1990998	Bentazon	25.7	27.9	F/F	30 - 150
1990998	Carbamazepine	33.9	35.1	F/F	40 - 150
1990998	Diuron	37.5	38.0	F/F	40 - 150
1990998	Fenuron	42.6	46.5	P/P	40 - 150
1990998	Fluridone	63.7	66.1	P/P	40 - 150
1990998	Hydrocodone	67.5	71.6	P/P	40 - 150
1990998	Imazapyr	91.0	89.8	P/P	40 - 150
1990998	Imidacloprid	102	103	P/P	40 - 160
1990998	Linuron	78.7	77.8	P/P	40 - 150
1990998	MCCP	65.8	60.1	P/P	40 - 150
1990998	Primidone	60.5	55.6	P/P	40 - 150
1990998	Pyraclostrobin	69.1	69.7	P/P	40 - 150
1990998	Triclopyr	77.8	78.2	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990998	Ibuprofen	71.8	73.4	P/P	40 - 150
1990998	Naproxen	50.9	47.3	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P345005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991713	AMPA	61.2	61.9	P/P	40 - 140
1991713	Endothall	152	142	F/F	40 - 140
1991713	Glufosinate	98.9	96.7	P/P	40 - 140
1991713	Glyphosate	103	97.9	P/P	40 - 140
1991713	Sucralose	97.2	99.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991068	Fluoride	89.2	89.2	F/F	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991255	Organic Carbon	94.2	94.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991800	Turbidity	11.9	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991753	Turbidity	3.83	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991631	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991865	Kjeldahl Nitrogen	1.57	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P345349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991643	NO2NO3-N	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P345334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991865	Total-P	0.0840	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P345055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991757	O-Phosphate-P	0.524	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P344935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990998	2,4-D	3.71	Spike	P	0 - 30
1990998	Acetaminophen	1.78	Spike	P	0 - 30
1990998	Bentazon	8.36	Spike	P	0 - 30
1990998	Carbamazepine	3.60	Spike	P	0 - 30
1990998	Diuron	1.32	Spike	P	0 - 30
1990998	Fenuron	8.76	Spike	P	0 - 30
1990998	Fluridone	3.74	Spike	P	0 - 30
1990998	Hydrocodone	5.84	Spike	P	0 - 30
1990998	Imazapyr	0.809	Spike	P	0 - 30
1990998	Imidacloprid	0.974	Spike	P	0 - 30
1990998	Linuron	1.24	Spike	P	0 - 30
1990998	MCP	9.09	Spike	P	0 - 30
1990998	Primidone	8.44	Spike	P	0 - 30
1990998	Pyraclostrobin	0.775	Spike	P	0 - 30
1990998	Triclopyr	0.510	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P344936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990998	Ibuprofen	2.20	Spike	P	0 - 30
1990998	Naproxen	7.36	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P345005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991713	AMPA	1.15	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P345005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991713	Endothall	6.62	Spike	P	0 - 30
1991713	Glufosinate	2.29	Spike	P	0 - 30
1991713	Glyphosate	5.50	Spike	P	0 - 30
1991713	Sucralose	1.94	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P345490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991068	Total Alkalinity	1.46	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P345492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991068	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P345360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991255	Organic Carbon	0.0493	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: 1991772
Field Sample ID: G1SD0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	81.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	56.6	P	30 - 160
EPA 8321B	Diuron-d6	60.1	P	30 - 160
EPA 8321B	Endothall-d6	88.4	P	50 - 160
EPA 8321B	Glyphosate 13C 15N	0.0818	F	40 - 160
EPA 8321B	Ibuprofen-d3	96.9	P	40 - 160
EPA 8321B	Primidone-d5	95.1	P	30 - 160
EPA 8321B	Sucralose-d6	107	P	40 - 160

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83807

Included Lab Sample IDs: 1991757, 1991758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.1	P/P	90 - 110
O-Phosphate-P	99.1	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83809

Included Lab Sample IDs: 1991753, 1991754

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

Reference Method: EPA 8321B

Run ID: A83887

Included Lab Sample IDs: 1991772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	101	P/P	50 - 150
Bentazon	112	119	P/P	50 - 150
Ibuprofen	64.5	90.7	P/P	50 - 150
MCPP	104	104	P/P	50 - 150
Naproxen	129	113	P/P	60 - 150
Triclopyr	103	108	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83899

Included Lab Sample IDs: 1991755, 1991756

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

Reference Method: SM 5310 B-00

Run ID: A83906

Included Lab Sample IDs: 1991755, 1991756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	94.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83920

Included Lab Sample IDs: 1991755, 1991756

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

Reference Method: SM 2320 B-97

Run ID: A83973

Included Lab Sample IDs: 1991753, 1991754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A83973

Included Lab Sample IDs: 1991753, 1991754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.3	98.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83978

Included Lab Sample IDs: 1991772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	96.2	94.3	P/P	60 - 160
Endothall	147	106	P/P	60 - 160
Glufosinate	94.0	97.5	P/P	60 - 160
Glyphosate	112	97.6	P/P	60 - 160
Sucralose	110	109	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84046

Included Lab Sample IDs: 1991755, 1991756

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84172

Included Lab Sample IDs: 1991755, 1991756

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.9	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84229

Included Lab Sample IDs: 1991772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	103	108	P/P	60 - 150
Carbamazepine	94.7	91.8	P/P	60 - 150
Diuron	99.0	96.2	P/P	60 - 150
Fenuron	94.4	99.1	P/P	60 - 150
Fluridone	97.9	97.4	P/P	60 - 160
Hydrocodone	110	106	P/P	60 - 150
Imazapyr	114	108	P/P	50 - 150
Imidacloprid	104	97.7	P/P	60 - 150
Linuron	112	112	P/P	60 - 150
Primidone	107	107	P/P	60 - 150
Pyraclostrobin	97.8	91.7	P/P	60 - 150

* 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				11.9	
	Turbidity				3.83	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.4 99.7			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.9	94.0 92.4			1.57
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.2 97.7			1.47
EPA 365.1 Rev. 2.0	Total-P	98.8	89.3 89.2			0.0840
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	95.2 95.7			0.524
EPA 8321B	2,4-D	104	74.1 71.4			3.71
	Acetaminophen	93.4	71.6 72.9			1.78
	AMPA	76.4	61.2 61.9			1.15
	Bentazon	102	25.7 27.9			8.36
	Carbamazepine	67.4	33.9 35.1			3.60
	Diuron	65.0	37.5 38.0			1.32
	Endothall	136	152 142			6.62
	Fenuron	107	42.6 46.5			8.76
	Fluridone	85.4	63.7 66.1			3.74
	Glufosinate	92.6	98.9 96.7			2.29
	Glyphosate	99.9	103 97.9			5.50
	Hydrocodone	109	67.5 71.6			5.84
	Ibuprofen	103	71.8 73.4			2.20
	Imazapyr	103	91.0 89.8			0.809
	Imidacloprid	113	102 103			0.974
	Linuron	101	78.7 77.8			1.24
	MCPP	109	65.8 60.1			9.09
	Naproxen	99.6	50.9 47.3			7.36
	Primidone	103	60.5 55.6			8.44
	Pyraclostrobin	83.4	69.1 69.7			0.775
	Sucralose	109	97.2 99.2			1.94
	Triclopyr	109	77.8 78.2			0.510
SM 2320 B-97	Total Alkalinity	101			1.46	
SM 4500 F-C-97	Fluoride	92.9	89.2 89.2			0.0
SM 5310 B-00	Organic Carbon	95.0	94.2 94.1			0.0493

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1991753, 1991754
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1991755, 1991756
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1991755, 1991756
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1991755, 1991756
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1991755, 1991756
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1991757, 1991758
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1991772
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1991753, 1991754
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1991753, 1991754
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1991753, 1991754
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1991755, 1991756

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	05/10/2018			05/10/2018 16:14	William L. Brown IV	1991753, 1991754
EPA 350.1 Rev. 2.0	05/10/2018			05/14/2018 12:51	Ping Hua	1991755
	05/10/2018			05/14/2018 12:52	Ping Hua	1991756
EPA 351.2 Rev. 2.0	05/10/2018	05/24/2018 13:00	Adrian Shelby	05/25/2018 16:31	Joseph Suarez	1991755
	05/10/2018	05/24/2018 13:00	Adrian Shelby	05/25/2018 16:33	Joseph Suarez	1991756
EPA 353.2 Rev. 2.0	05/10/2018			05/15/2018 12:49	Lauren Bottorf	1991755
	05/10/2018			05/15/2018 12:51	Lauren Bottorf	1991756
EPA 365.1 Rev. 2.0	05/10/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 10:03	Beverly Y. Sanders	1991755
	05/10/2018	05/15/2018 12:25	Sima Feizi	05/21/2018 10:04	Beverly Y. Sanders	1991756
EPA 365.1 Rev. 2.0 dissolved	05/10/2018			05/10/2018 15:39	Julia Storbeck	1991757
	05/10/2018			05/10/2018 16:04	Julia Storbeck	1991758
EPA 8321B	05/10/2018	05/11/2018 13:00	Hoor Shaik	05/12/2018 08:42	Juyoung Kim	1991772
	05/10/2018	05/11/2018 13:00	Hoor Shaik	05/16/2018 09:15	Juyoung Kim	1991772
	05/10/2018	05/15/2018 16:00	Hoor Shaik	05/15/2018 19:45	Juyoung Kim	1991772
SM 2320 B-97	05/10/2018			05/17/2018 00:14	Dale L. Simmons	1991753
	05/10/2018			05/17/2018 00:23	Dale L. Simmons	1991754
SM 2540 D-97	05/10/2018			05/14/2018 14:40	William L. Brown IV	1991753, 1991754
SM 4500 F-C-97	05/10/2018			05/16/2018 22:38	Dale L. Simmons	1991753
	05/10/2018			05/16/2018 22:42	Dale L. Simmons	1991754
SM 5310 B-00	05/10/2018			05/15/2018 10:42	Megan Treadwell	1991755
	05/10/2018			05/15/2018 10:56	Megan Treadwell	1991756