

Chemical Analysis Report

SW-DIST-2018-05-23-01

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

Event Description: **1443 E&F B ent**
Request ID: **RQ-2018-05-21-13**
Customer: **SW-DIST**
Project ID: **SMP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 07-JUN-2018 14:56

A handwritten signature in black ink, appearing to read "Liang Lin", 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: Hillsborough River @ Rowlett Park Dr

Collection Date/Time: 05/22/2018 10:00

Field ID: G2SW0035

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994770	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P345830	
	SM 2320 B-97	Total Alkalinity	105		mg CaCO3/L	P346083	
	SM 2540 D-97	TSS	5	IA	mg/L	P346367	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P346087	
1994772	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P346259	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P346033	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P345900	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P345893	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P346312	
1994774	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P345828	

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: Hillsborough River @ I-275 Bridge

Collection Date/Time: 05/22/2018 11:00

Field ID: G2SW0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994771	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P345830	
	SM 2320 B-97	Total Alkalinity	132		mg CaCO3/L	P346083	
	SM 2540 D-97	TSS	2	U	mg/L	P346367	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P346087	
1994773	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P346259	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P346033	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P345900	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P345893	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P346312	
1994775	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P345828	

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: Hillsborough River @ I-275 Bridge

Collection Date/Time: 05/22/2018 11:00

Field ID: G2SW0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994795	EPA 8321B	2,4-D	0.042		ug/L	P345505	
		Bentazon	0.0070		ug/L	P345505	
		MCP	0.0039	I	ug/L	P345505	
		Triclopyr**	0.0040	U	ug/L	P345505	MS
		Imidacloprid	0.014		ug/L	P345505	
		Diuron	0.012		ug/L	P345505	
		Pyraclostrobin**	0.0020	U	ug/L	P345505	
		Primidone**	0.0040	U	ug/L	P345505	
		Linuron	0.0040	U	ug/L	P345505	
		Acetaminophen**	0.012	I	ug/L	P345505	
		Fenuron	0.016	U	ug/L	P345505	

Field ID: G2SW0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1994795	EPA 8321B	Imazapyr**	0.31		ug/L	P345505	
		Carbamazepine**	9.4E-04	I	ug/L	P345505	
		Fluridone**	0.0028		ug/L	P345505	
		Hydrocodone**	8.0E-04	U	ug/L	P345505	
		Sucralose**	0.25	I	ug/L	P345837	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345830

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P346259

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P346033

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P345900

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P345893

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P345828

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

Reference Method: EPA 8321B
 Batch ID: P345505

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P345505

Component	Result	Code	Units
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: P345837

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: SM 2320 B-97
 Batch ID: P346083

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

Reference Method: SM 2540 D-97
 Batch ID: P346367

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P346087

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P346312

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: P346259

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346033

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345900

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: P345893

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345828

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

Reference Method: EPA 8321B
Batch ID: P345505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	65.0		P	40 - 150
Acetaminophen	102		P	30 - 150
Bentazon	81.7		P	30 - 150
Carbamazepine	87.4		P	40 - 150
Diuron	68.7		P	40 - 150
Fenuron	102		P	40 - 150
Fluridone	83.6		P	40 - 150
Hydrocodone	99.5		P	40 - 150
Imazapyr	88.5		P	40 - 150
Imidacloprid	93.1		P	40 - 160
Linuron	72.9		P	40 - 150
MCPP	88.5		P	40 - 150
Primidone	90.3		P	40 - 150
Pyraclostrobin	82.1		P	40 - 150
Triclopyr	85.3		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P345837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	97.3		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P346083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P346087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.0		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994734	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994778	Kjeldahl Nitrogen	98.3	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994734	NO2NO3-N	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994772	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994774	O-Phosphate-P	95.5	96.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P345505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994050	2,4-D	122	149	P/P	40 - 150
1994050	Acetaminophen	87.5	87.6	P/P	30 - 150
1994050	Bentazon	49.3	45.1	P/P	30 - 150
1994050	Carbamazepine	51.5	58.3	P/P	40 - 150
1994050	Diuron	57.4	55.0	P/P	40 - 150
1994050	Fenuron	53.2	52.8	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P345505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994050	Fluridone	67.4	66.9	P/P	40 - 150
1994050	Hydrocodone	76.2	74.3	P/P	40 - 150
1994050	Imazapyr	69.7	95.3	P/P	40 - 150
1994050	Imidacloprid	122	118	P/P	40 - 160
1994050	Linuron	60.8	65.4	P/P	40 - 150
1994050	MCP	134	130	P/P	40 - 150
1994050	Primidone	69.0	65.5	P/P	40 - 150
1994050	Pyraclostrobin	73.3	89.4	P/P	40 - 150
1994050	Triclopyr	187	171	F/F	40 - 150

Reference Method: EPA 8321B
 Batch ID: P345837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994753	Sucralose	121	108	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P346087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994835	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P346312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994734	Organic Carbon	94.2	92.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994665	Turbidity	2.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P346259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994734	Ammonia-N	1.17	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P346033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994778	Kjeldahl Nitrogen	2.46	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994734	NO2NO3-N	1.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994772	Total-P	0.440	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994774	O-Phosphate-P	0.463	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P345505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994050	2,4-D	12.1	Spike	P	0 - 30
1994050	Acetaminophen	0.153	Spike	P	0 - 30
1994050	Bentazon	8.90	Spike	P	0 - 30
1994050	Carbamazepine	12.4	Spike	P	0 - 30
1994050	Diuron	4.31	Spike	P	0 - 30
1994050	Fenuron	0.887	Spike	P	0 - 30
1994050	Fluridone	0.658	Spike	P	0 - 30
1994050	Hydrocodone	2.55	Spike	P	0 - 30
1994050	Imazapyr	5.75	Spike	P	0 - 30
1994050	Imidacloprid	3.32	Spike	P	0 - 30
1994050	Linuron	7.36	Spike	P	0 - 30
1994050	MCPP	3.40	Spike	P	0 - 30
1994050	Primidone	5.24	Spike	P	0 - 30
1994050	Pyraclostrobin	19.7	Spike	P	0 - 30
1994050	Triclopyr	8.55	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P345837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994753	Sucralose	9.03	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P346083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994835	Total Alkalinity	0.226	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P346087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994835	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994734	Organic Carbon	1.18	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: 1994795
Field Sample ID: G2SW0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	132	P	30 - 160
EPA 8321B	Acetaminophen-d4	135	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.6	P	30 - 160
EPA 8321B	Diuron-d6	79.0	P	30 - 160
EPA 8321B	Primidone-d5	125	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A84113
Included Lab Sample IDs: 1994774, 1994775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.5	P/P	90 - 110
O-Phosphate-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A84114
Included Lab Sample IDs: 1994770, 1994771

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84142
Included Lab Sample IDs: 1994772, 1994773

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84159

Included Lab Sample IDs: 1994772, 1994773

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

Reference Method: SM 2320 B-97

Run ID: A84181

Included Lab Sample IDs: 1994770, 1994771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.6	P/P	90 - 110
Total Alkalinity	99.6	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A84181

Included Lab Sample IDs: 1994770, 1994771

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	98.1	P/P	90 - 110
Fluoride	98.1	97.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84186

Included Lab Sample IDs: 1994795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	91.6	113	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84231

Included Lab Sample IDs: 1994772, 1994773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84279

Included Lab Sample IDs: 1994795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.6	85.6	P/P	50 - 150
Acetaminophen	123	120	P/P	60 - 150
Bentazon	99.5	94.8	P/P	50 - 150
Carbamazepine	118	120	P/P	60 - 150
Diuron	119	132	P/P	60 - 150
Fenuron	116	112	P/P	60 - 150
Fluridone	123	123	P/P	60 - 160
Hydrocodone	114	119	P/P	60 - 150
Imazapyr	99.1	94.8	P/P	50 - 150
Imidacloprid	97.5	105	P/P	60 - 150
Linuron	117	118	P/P	60 - 150
MCPP	82.2	85.1	P/P	50 - 150
Primidone	111	102	P/P	60 - 150
Pyraclostrobin	105	116	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A84279
Included Lab Sample IDs: 1994795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Triclopyr	95.8	97.6	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84301
Included Lab Sample IDs: 1994772, 1994773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A84324
Included Lab Sample IDs: 1994772, 1994773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	96.0	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					2.14	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	102			1.17
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	98.3	94.6			2.46
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.0	101			1.87
EPA 365.1 Rev. 2.0	Total-P	103	102	101			0.440
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	95.5	96.2			0.463
EPA 8321B	2,4-D	65.0	122	149			12.1
	Acetaminophen	102	87.5	87.6			0.153
	Bentazon	81.7	49.3	45.1			8.90
	Carbamazepine	87.4	51.5	58.3			12.4
	Diuron	68.7	57.4	55.0			4.31
	Fenuron	102	53.2	52.8			0.887
	Fluridone	83.6	67.4	66.9			0.658
	Hydrocodone	99.5	76.2	74.3			2.55
	Imazapyr	88.5	69.7	95.3			5.75
	Imidacloprid	93.1	122	118			3.32
	Linuron	72.9	60.8	65.4			7.36
	MCP	88.5	134	130			3.40
	Primidone	90.3	69.0	65.5			5.24
	Pyraclostrobin	82.1	73.3	89.4			19.7
	Sucralose	97.3	121	108			9.03
	Triclopyr	85.3	187	171			8.55
SM 2320 B-97	Total Alkalinity	104				0.226	
SM 4500 F-C-97	Fluoride	94.0	101	101			0.0
SM 5310 B-00	Organic Carbon	95.4	94.2	92.2			1.18

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1994770, 1994771
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1994772, 1994773
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1994772, 1994773
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1994772, 1994773
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1994772, 1994773
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1994774, 1994775
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1994795
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1994770, 1994771
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1994770, 1994771
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1994770, 1994771
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1994772, 1994773

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	05/23/2018			05/23/2018 17:13	William L. Brown IV	1994770, 1994771
EPA 350.1 Rev. 2.0	05/23/2018			06/01/2018 11:44	Ping Hua	1994772
	05/23/2018			06/01/2018 11:45	Ping Hua	1994773
EPA 351.2 Rev. 2.0	05/23/2018	05/29/2018 10:30	Adrian Shelby	05/30/2018 11:26	Joseph Suarez	1994772
	05/23/2018	05/29/2018 10:30	Adrian Shelby	05/30/2018 11:27	Joseph Suarez	1994773
EPA 353.2 Rev. 2.0	05/23/2018			05/24/2018 12:52	Lauren Bottorf	1994772
	05/23/2018			05/24/2018 12:53	Lauren Bottorf	1994773
EPA 365.1 Rev. 2.0	05/23/2018	05/24/2018 13:10	Sima Feizi	05/25/2018 12:01	Beverly Y. Sanders	1994772
	05/23/2018	05/24/2018 13:10	Sima Feizi	05/25/2018 12:11	Beverly Y. Sanders	1994773
EPA 365.1 Rev. 2.0 dissolved	05/23/2018			05/23/2018 16:12	Megan Treadwell	1994774
	05/23/2018			05/23/2018 16:45	Megan Treadwell	1994775
EPA 8321B	05/23/2018	05/23/2018 14:00	Hoor Shaik	05/24/2018 02:09	Juyoung Kim	1994795
	05/23/2018	05/23/2018 14:00	Hoor Shaik	05/24/2018 18:53	Juyoung Kim	1994795
	05/23/2018	05/25/2018 14:00	Juyoung Kim	05/26/2018 00:50	Juyoung Kim	1994795
SM 2320 B-97	05/23/2018			05/25/2018 21:26	Dale L. Simmons	1994770
	05/23/2018			05/25/2018 22:06	Dale L. Simmons	1994771
SM 2540 D-97	05/23/2018			05/25/2018 16:24	Yijie Li	1994770, 1994771
SM 4500 F-C-97	05/23/2018			05/25/2018 21:26	Dale L. Simmons	1994770
	05/23/2018			05/25/2018 22:06	Dale L. Simmons	1994771
SM 5310 B-00	05/23/2018			06/01/2018 23:01	Megan Treadwell	1994772
	05/23/2018			06/01/2018 23:18	Megan Treadwell	1994773