

Chemical Analysis Report

SO-DIST-2018-05-25-01

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

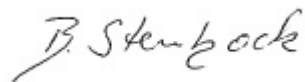
Event Description: **Myakka Streams**
Request ID: **RQ-2018-05-28-21**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Date Certified: 22-JUN-2018 16:54



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: Metals, 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: Little Alligator @ Midway

Collection Date/Time: 05/24/2018 10:00

Field ID: G3SD0071

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995544	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P346001	
	SM 2320 B-97	Total Alkalinity	111	A	mg CaCO3/L	P346240	
	SM 2540 D-97	TSS	5	IA	mg/L	P346394	
	SM 4500 F-C-97	Fluoride	0.55		mg F/L	P346243	
1995546	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P346342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P346354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P346124	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P346546	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P346492	
1995548	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P345990	
1995575	EPA 200.7 Rev. 4.4	Iron	140	I	ug/L	P346114	
	EPA 200.8 Rev. 5.4	Arsenic	2.84		ug/L	P346114	
		Cadmium	0.060	U	ug/L	P346114	
		Chromium	1.2	U	ug/L	P346114	
		Copper	0.89	I	ug/L	P346114	
		Lead	0.15	U	ug/L	P346114	
		Nickel	0.60	U	ug/L	P346114	
		Silver	0.030	U	ug/L	P346114	
		Zinc	3.0	U	ug/L	P346114	

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: Apollo Waterway @ Bend

Collection Date/Time: 05/24/2018 10:40

Field ID: G3SD0069

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995550	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P346001	
	SM 2320 B-97	Total Alkalinity	93		mg CaCO3/L	P346240	
	SM 2540 D-97	TSS	10	I	mg/L	P346394	
	SM 4500 F-C-97	Fluoride	0.55		mg F/L	P346243	
1995552	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P346342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P346354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P346124	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P346167	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P346492	
1995554	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P345990	

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: Rock Creek @ Eisenhower Dr

Collection Date/Time: 05/24/2018 11:10

Field ID: G3SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995545	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P346001	
	SM 2320 B-97	Total Alkalinity	83		mg CaCO3/L	P346240	
	SM 2540 D-97	TSS	6	I	mg/L	P346393	
	SM 4500 F-C-97	Fluoride	0.42		mg F/L	P346243	
1995547	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P346342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P346354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P346125	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P346167	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P346491	
1995549	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P345990	
1995576	EPA 200.7 Rev. 4.4	Iron	290	I	ug/L	P346114	
	EPA 200.8 Rev. 5.4	Arsenic	1.83		ug/L	P346114	
		Cadmium	0.060	U	ug/L	P346114	
		Chromium	1.2	U	ug/L	P346114	
		Copper	0.95	I	ug/L	P346114	
		Lead	0.15	U	ug/L	P346114	
		Nickel	0.60	U	ug/L	P346114	
		Silver	0.030	U	ug/L	P346114	
		Zinc	3.0	U	ug/L	P346114	

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: Myakka River (Tidal) @ US 41

Collection Date/Time: 05/24/2018 12:10

Field ID: G3SD0068

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995574	EPA 8321B	2,4-D	0.0048	I	ug/L	P345863	
		Bentazon	0.0017	I	ug/L	P345863	
		MCP	0.0020	U	ug/L	P345863	
		Triclopyr**	0.0040	U	ug/L	P345863	
		Imidacloprid	0.060		ug/L	P345863	MS
		Diuron	0.0025	I	ug/L	P345863	
		Pyraclostrobin**	0.0020	U	ug/L	P345863	
		Primidone**	0.0040	U	ug/L	P345863	
		Linuron	0.0040	U	ug/L	P345863	
		Acetaminophen**	0.0080	U	ug/L	P345863	
		Fenuron	0.016	U	ug/L	P345863	
		Imazapyr**	0.073		ug/L	P345863	
		Carbamazepine**	4.3E-04	I	ug/L	P345863	
		Fluridone**	0.013		ug/L	P345863	
		Hydrocodone**	8.0E-04	U	ug/L	P345863	
		Sucralose**	0.20	I	ug/L	P345837	

Sample Location: Rock Creek @ Eisenhower Dr

Collection Date/Time: 05/24/2018 11:15

Field ID: G3SD0070_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995556	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P346001	
	SM 2320 B-97	Total Alkalinity	83		mg CaCO3/L	P346240	
	SM 2540 D-97	TSS	6	I	mg/L	P346393	
	SM 4500 F-C-97	Fluoride	0.42		mg F/L	P346243	
1995557	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P346342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P346354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P346125	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P346167	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P346491	
1995558	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P345990	
1995577	EPA 200.7 Rev. 4.4	Iron	280	I	ug/L	P346114	
	EPA 200.8 Rev. 5.4	Arsenic	1.85		ug/L	P346114	
		Cadmium	0.060	U	ug/L	P346114	
		Chromium	1.2	U	ug/L	P346114	
		Copper	0.94	I	ug/L	P346114	
		Lead	0.15	U	ug/L	P346114	
		Nickel	0.60	U	ug/L	P346114	
		Silver	0.030	U	ug/L	P346114	
		Zinc	3.0	U	ug/L	P346114	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346001

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P346114

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P346114

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346124

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346125

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346167

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
Batch ID: P346546

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345990

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

Reference Method: EPA 8321B
Batch ID: P345837

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P345863

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
MCP	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: SM 2320 B-97
Batch ID: P346240

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P346393

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P346394

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P346243

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346491

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

Reference Method: SM 5310 B-00
Batch ID: P346492

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P346114

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P346114

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	105		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	96.3		P	85 - 115
Copper	98.8		P	85 - 115
Lead	95.4		P	85 - 115
Nickel	97.8		P	85 - 115
Silver	101		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346124

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346167

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345990

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

Reference Method: EPA 8321B
Batch ID: P345837

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

Reference Method: EPA 8321B
Batch ID: P345863

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	82.8		P	40 - 150
Acetaminophen	99.0		P	30 - 150
Bentazon	90.9		P	30 - 150
Carbamazepine	66.6		P	40 - 150
Diuron	53.8		P	40 - 150
Fenuron	102		P	40 - 150
Fluridone	65.5		P	40 - 150
Hydrocodone	86.4		P	40 - 150
Imazapyr	80.1		P	40 - 150
Imidacloprid	107		P	40 - 160
Linuron	57.9		P	40 - 150
MCPP	90.7		P	40 - 150
Primidone	97.1		P	40 - 150
Pyraclostrobin	73.1		P	40 - 150
Triclopyr	86.9		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P346240

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

Reference Method: SM 4500 F-C-97
Batch ID: P346243

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P346492

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P346114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995575	Iron	101	103	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P346114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995575	Arsenic	109	109	P/P	70 - 130
1995575	Cadmium	94.4	97.5	P/P	70 - 130
1995575	Chromium	95.2	93.7	P/P	70 - 130
1995575	Copper	92.5	92.8	P/P	70 - 130
1995575	Lead	102	103	P/P	70 - 130
1995575	Nickel	91.2	92.5	P/P	70 - 130
1995575	Silver	91.0	92.5	P/P	70 - 130
1995575	Zinc	93.4	93.2	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995413	Ammonia-N	98.5	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995187	Kjeldahl Nitrogen	92.1	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995182	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995592	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995590	Total-P	97.5	103	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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995672	O-Phosphate-P	95.4	96.5	P/P	90 - 110

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: EPA 8321B
Batch ID: P345863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995511	2,4-D	126	135	P/P	40 - 150
1995511	Acetaminophen	136	111	P/P	30 - 150
1995511	Bentazon	60.3	64.2	P/P	30 - 150
1995511	Carbamazepine	64.0	56.2	P/P	40 - 150
1995511	Diuron	51.4	43.9	P/P	40 - 150
1995511	Fenuron	94.8	85.6	P/P	40 - 150
1995511	Fluridone	68.4	58.3	P/P	40 - 150
1995511	Hydrocodone	111	90.1	P/P	40 - 150
1995511	Imazapyr	118	98.3	P/P	40 - 150
1995511	Imidacloprid	194	157	F/P	40 - 160
1995511	Linuron	59.6	56.9	P/P	40 - 150
1995511	MCPP	111	125	P/P	40 - 150
1995511	Primidone	130	114	P/P	40 - 150
1995511	Pyraclostrobin	84.3	72.8	P/P	40 - 150
1995511	Triclopyr	107	124	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P346243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995544	Fluoride	92.5	92.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995456	Organic Carbon	101		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P346492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995546	Organic Carbon	98.5	98.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995498	Turbidity	2.74	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P346114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995575	Iron	2.16	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P346114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995575	Arsenic	0.0717	Spike	P	0 - 20
1995575	Cadmium	3.22	Spike	P	0 - 20
1995575	Chromium	1.63	Spike	P	0 - 20
1995575	Copper	0.329	Spike	P	0 - 20
1995575	Lead	1.05	Spike	P	0 - 20
1995575	Nickel	1.36	Spike	P	0 - 20
1995575	Silver	1.59	Spike	P	0 - 20
1995575	Zinc	0.220	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995413	Ammonia-N	0.811	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995187	Kjeldahl Nitrogen	2.88	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995182	NO2NO3-N	0.363	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995592	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995590	Total-P	4.65	Spike	P	0 - 20

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: P345990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995672	O-Phosphate-P	0.971	Spike	P	0 - 20

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: EPA 8321B
Batch ID: P345863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995511	2,4-D	6.77	Spike	P	0 - 30
1995511	Acetaminophen	20.4	Spike	P	0 - 30
1995511	Bentazon	5.66	Spike	P	0 - 30
1995511	Carbamazepine	13.0	Spike	P	0 - 30
1995511	Diuron	15.7	Spike	P	0 - 30
1995511	Fenuron	10.2	Spike	P	0 - 30
1995511	Fluridone	15.9	Spike	P	0 - 30
1995511	Hydrocodone	21.1	Spike	P	0 - 30
1995511	Imazapyr	17.9	Spike	P	0 - 30
1995511	Imidacloprid	21.2	Spike	P	0 - 30
1995511	Linuron	4.56	Spike	P	0 - 30
1995511	MCP	12.0	Spike	P	0 - 30
1995511	Primidone	13.3	Spike	P	0 - 30
1995511	Pyraclostrobin	14.7	Spike	P	0 - 30
1995511	Triclopyr	15.1	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P346240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995544	Total Alkalinity	0.804	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P346243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995544	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995456	Organic Carbon	1.07	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P346492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995546	Organic Carbon	0.213	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: 1995574
Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	86.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	97.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	72.8	P	30 - 160
EPA 8321B	Diuron-d6	80.0	P	30 - 160
EPA 8321B	Primidone-d5	80.9	P	30 - 160
EPA 8321B	Sucralose-d6	116	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A84169

Included Lab Sample IDs: 1995548, 1995549, 1995554, 1995558

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.8	P/P	90 - 110
O-Phosphate-P	98.8	97.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84171

Included Lab Sample IDs: 1995544, 1995545, 1995550, 1995556

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

Reference Method: EPA 8321B

Run ID: A84186

Included Lab Sample IDs: 1995574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.2	102	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84235

Included Lab Sample IDs: 1995546, 1995547, 1995552, 1995557

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A84263

Included Lab Sample IDs: 1995575, 1995576, 1995577

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	100	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84278

Included Lab Sample IDs: 1995574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	106	99.2	P/P	50 - 150
Bentazon	131	90.6	P/P	50 - 150
MCP	99.9	98.7	P/P	50 - 150
Triclopyr	116	85.5	P/P	50 - 160

Reference Method: SM 2320 B-97

Run ID: A84290

Included Lab Sample IDs: 1995544, 1995545, 1995550, 1995556

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A84290

Included Lab Sample IDs: 1995544, 1995545, 1995550, 1995556

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84336

Included Lab Sample IDs: 1995546, 1995547, 1995552, 1995557

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A84340

Included Lab Sample IDs: 1995575, 1995576, 1995577

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.4	98.0	P/P	90 - 110
Cadmium	97.2	94.6	P/P	90 - 110
Copper	99.1	98.5	P/P	90 - 110
Lead	95.3	95.4	P/P	90 - 110
Nickel	94.6	93.4	P/P	90 - 110
Silver	97.3	95.9	P/P	90 - 110
Zinc	98.0	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84352

Included Lab Sample IDs: 1995547, 1995552, 1995557

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A84389

Included Lab Sample IDs: 1995575, 1995576, 1995577

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	90.6	96.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A84394

Included Lab Sample IDs: 1995546, 1995547, 1995552, 1995557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.4	P/P	90 - 110
Organic Carbon	99.4	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84411

Included Lab Sample IDs: 1995546, 1995547, 1995552, 1995557

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.9	96.2	P/P	90 - 110
Kjeldahl Nitrogen	96.7	93.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A84432

Included Lab Sample IDs: 1995574

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	127	138	P/P	60 - 150
Carbamazepine	128	131	P/P	60 - 150
Diuron	130	130	P/P	60 - 150
Fenuron	101	101	P/P	60 - 150
Fluridone	131	127	P/P	60 - 160
Hydrocodone	99.7	105	P/P	60 - 150
Imazapyr	98.8	85.7	P/P	50 - 150
Imidacloprid	104	104	P/P	60 - 150
Linuron	116	116	P/P	60 - 150
Primidone	103	108	P/P	60 - 150
Pyraclostrobin	106	110	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84457

Included Lab Sample IDs: 1995546

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	101	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.74	
EPA 200.7 Rev. 4.4	Iron	102	101	103			2.16
EPA 200.8 Rev. 5.4	Arsenic	105	109	109			0.0717
	Cadmium	102	94.4	97.5			3.22
	Chromium	96.3	95.2	93.7			1.63
	Copper	98.8	92.5	92.8			0.329
	Lead	95.4	102	103			1.05
	Nickel	97.8	91.2	92.5			1.36
	Silver	101	91.0	92.5			1.59
	Zinc	104	93.4	93.2			0.220
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.5	99.4			0.811
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	92.1	95.8			2.88
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102	102			0.363
	NO ₂ NO ₃ -N	104	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	101	97.5	103			4.65
	Total-P	100	101	97.9			2.23
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	95.4	96.5			0.971
EPA 8321B	2,4-D	82.8	126	135			6.77
	Acetaminophen	99.0	136	111			20.4
	Bentazon	90.9	60.3	64.2			5.66
	Carbamazepine	66.6	64.0	56.2			13.0
	Diuron	53.8	51.4	43.9			15.7
	Fenuron	102	94.8	85.6			10.2
	Fluridone	65.5	68.4	58.3			15.9
	Hydrocodone	86.4	111	90.1			21.1
	Imazapyr	80.1	118	98.3			17.9
	Imidacloprid	107	194	157			21.2
	Linuron	57.9	59.6	56.9			4.56
	MCP	90.7	111	125			12.0
	Primidone	97.1	130	114			13.3
	Pyraclostrobin	73.1	84.3	72.8			14.7
	Sucralose	97.3	121	108			9.03
	Triclopyr	86.9	107	124			15.1
SM 2320 B-97	Total Alkalinity	103				0.804	
SM 4500 F-C-97	Fluoride	95.3	92.5	92.5			0.0
SM 5310 B-00	Organic Carbon	98.0	101				1.07
	Organic Carbon	98.8	98.5	98.7			0.213

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1995544, 1995545, 1995550, 1995556
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1995575, 1995576, 1995577
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1995575, 1995576, 1995577
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1995546, 1995547, 1995552, 1995557
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1995546, 1995547, 1995552, 1995557
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1995546, 1995547, 1995552, 1995557

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1995546, 1995547, 1995552, 1995557
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1995548, 1995549, 1995554, 1995558
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1995574
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1995544, 1995545, 1995550, 1995556
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1995544, 1995545, 1995550, 1995556
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1995544, 1995545, 1995550, 1995556
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1995546, 1995547, 1995552, 1995557

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	05/25/2018			05/25/2018 17:29	William L. Brown IV	1995544, 1995545, 1995550, 1995556
EPA 200.7 Rev. 4.4	05/25/2018	05/30/2018 12:50	Elliott D. Healy	05/31/2018 11:56	Betina Topolski	1995575
	05/25/2018	05/30/2018 12:50	Elliott D. Healy	05/31/2018 12:16	Betina Topolski	1995576
	05/25/2018	05/30/2018 12:50	Elliott D. Healy	05/31/2018 12:22	Betina Topolski	1995577
EPA 200.8 Rev. 5.4	05/25/2018	05/30/2018 12:50	Elliott D. Healy	06/04/2018 12:58	Robert K Palmer	1995575
	05/25/2018	05/30/2018 12:50	Elliott D. Healy	06/04/2018 13:26	Robert K Palmer	1995576
	05/25/2018	05/30/2018 12:50	Elliott D. Healy	06/04/2018 13:36	Robert K Palmer	1995577
	05/25/2018	05/30/2018 12:50	Elliott D. Healy	06/05/2018 13:50	Robert K Palmer	1995575
	05/25/2018	05/30/2018 12:50	Elliott D. Healy	06/05/2018 14:07	Robert K Palmer	1995576
	05/25/2018	05/30/2018 12:50	Elliott D. Healy	06/05/2018 14:12	Robert K Palmer	1995577
EPA 350.1 Rev. 2.0	05/25/2018			06/04/2018 15:27	Julia Storbeck	1995546
	05/25/2018			06/04/2018 15:29	Julia Storbeck	1995547
	05/25/2018			06/04/2018 15:30	Julia Storbeck	1995552
	05/25/2018			06/04/2018 15:32	Julia Storbeck	1995557
EPA 351.2 Rev. 2.0	05/25/2018	06/05/2018 11:50	Adrian Shelby	06/07/2018 08:24	Joseph Suarez	1995546
	05/25/2018	06/05/2018 11:50	Adrian Shelby	06/07/2018 08:29	Joseph Suarez	1995547
	05/25/2018	06/05/2018 11:50	Adrian Shelby	06/07/2018 08:30	Joseph Suarez	1995552
	05/25/2018	06/05/2018 11:50	Adrian Shelby	06/07/2018 08:32	Joseph Suarez	1995557
EPA 353.2 Rev. 2.0	05/25/2018			05/30/2018 11:27	Lauren Bottorf	1995546
	05/25/2018			05/30/2018 11:29	Lauren Bottorf	1995552
	05/25/2018			05/30/2018 11:42	Lauren Bottorf	1995547
	05/25/2018			05/30/2018 11:43	Lauren Bottorf	1995557
EPA 365.1 Rev. 2.0	05/25/2018	05/30/2018 13:15	Sima Feizi	06/05/2018 09:49	Beverly Y. Sanders	1995547
	05/25/2018	05/30/2018 13:15	Sima Feizi	06/05/2018 09:50	Beverly Y. Sanders	1995552
	05/25/2018	05/30/2018 13:15	Sima Feizi	06/05/2018 09:51	Beverly Y. Sanders	1995557
	05/25/2018	06/07/2018 11:15	Sima Feizi	06/08/2018 10:22	Beverly Y. Sanders	1995546
EPA 365.1 Rev. 2.0 dissolved	05/25/2018			05/25/2018 14:54	Megan Treadwell	1995549
	05/25/2018			05/25/2018 14:59	Megan Treadwell	1995554
	05/25/2018			05/25/2018 15:00	Megan Treadwell	1995558
	05/25/2018			05/25/2018 15:01	Megan Treadwell	1995548
EPA 8321B	05/25/2018	05/25/2018 14:00	Juyoung Kim	05/26/2018 06:06	Juyoung Kim	1995574
	05/25/2018	05/30/2018 10:00	Hoor Shaik	06/01/2018 11:11	Juyoung Kim	1995574
	05/25/2018	05/30/2018 10:00	Hoor Shaik	06/03/2018 02:23	Juyoung Kim	1995574
SM 2320 B-97	05/25/2018			06/01/2018 01:06	Dale L. Simmons	1995544
	05/25/2018			06/01/2018 01:16	Dale L. Simmons	1995545
	05/25/2018			06/01/2018 01:26	Dale L. Simmons	1995550
	05/25/2018			06/01/2018 01:36	Dale L. Simmons	1995556
SM 2540 D-97	05/25/2018			05/29/2018 15:33	Yijie Li	1995544, 1995545, 1995550, 1995556
SM 4500 F-C-97	05/25/2018			05/31/2018 23:14	Dale L. Simmons	1995544
	05/25/2018			05/31/2018 23:25	Dale L. Simmons	1995545

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	05/25/2018			05/31/2018 23:28	Dale L. Simmons	1995550
	05/25/2018			05/31/2018 23:32	Dale L. Simmons	1995556
SM 5310 B-00	05/25/2018			06/05/2018 08:31	Megan Treadwell	1995547
	05/25/2018			06/05/2018 08:45	Megan Treadwell	1995557
	05/25/2018			06/05/2018 11:37	Megan Treadwell	1995546
	05/25/2018			06/05/2018 12:14	Megan Treadwell	1995552