

Chemical Analysis Report

SO-DIST-2018-05-15-02

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

Event Description: **Sarasota Streams**
Request ID: **RQ-2018-05-07-44**
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: Liang Lin, Environmental Administrator

Date Certified: 04-JUN-2018 12:16

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: Phillippi Creek@Proctor

Collection Date/Time: 05/14/2018 10:15

Field ID: G3SD0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992822	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P345364	
	EPA 300.0 Rev. 2.1	Chloride	93		mg Cl/L	P345579	
		Sulfate	160		mg SO4/L	P345582	
	SM 2120 B	Color (true)	32		PCU	P345341	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P345631	
	SM 2540 C-97	TDS	620	A	mg/L	P345724	
	SM 2540 D-97	TSS	4	IA	mg/L	P345716	
	SM 4500 F-C-97	Fluoride	0.45		mg F/L	P345632	
1992824	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P345569	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P345566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	9.7		mg N/L	P345508	
	EPA 365.1 Rev. 2.0	Total-P	0.40		mg P/L	P345446	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P345625	
1992826	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P345367	

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.

Sample Location: Matheny Creek @BenevaRd

Collection Date/Time: 05/14/2018 10:45

Field ID: G3SD0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992850	EPA 8321B	2,4-D	2.1		ug/L	P345390	
		Bentazon	0.046		ug/L	P345390	
		MCP	0.0027	I	ug/L	P345390	
		Triclopyr**	0.0040	U	ug/L	P345390	
		Imidacloprid	0.047		ug/L	P345390	MS
		Diuron	0.0020	U	ug/L	P345390	
		Pyraclostrobin**	0.0020	U	ug/L	P345390	
		Primidone**	0.0040	U	ug/L	P345390	
		Linuron	0.0040	U	ug/L	P345390	
		Acetaminophen**	0.027	I	ug/L	P345390	MS
		Fenuron	0.016	U	ug/L	P345390	
		Imazapyr**	6.8		ug/L	P345390	
		Carbamazepine**	4.0E-04	U	ug/L	P345390	
		Fluridone**	0.14		ug/L	P345390	
		Hydrocodone**	8.0E-04	U	ug/L	P345390	
		Sucralose**	0.13		ug/L	P345129	

Sample Location: North Creek(Tidal)@US41

Collection Date/Time: 05/14/2018 11:15

Field ID: G3SD0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992852	EPA 8321B	2,4-D	0.012		ug/L	P345390	
		Bentazon	0.018		ug/L	P345390	

Field ID: G3SD0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992852	EPA 8321B	MCP	0.0020	U	ug/L	P345390	
		Triclopyr**	0.0040	U	ug/L	P345390	
		Imidacloprid	0.16		ug/L	P345390	MS
		Diuron	0.0029	I	ug/L	P345390	
		Pyraclorobin**	0.0020	U	ug/L	P345390	
		Primidone**	0.0083	I	ug/L	P345390	
		Linuron	0.0040	U	ug/L	P345390	
		Acetaminophen**	0.0080	U	ug/L	P345390	MS
		Fenuron	0.016	U	ug/L	P345390	
		Imazapyr**	0.58		ug/L	P345390	
		Carbamazepine**	7.9E-04	I	ug/L	P345390	
		Fluridone**	0.062		ug/L	P345390	
		Hydrocodone**	8.0E-04	U	ug/L	P345390	
		Sucralose**	1.1		ug/L	P345129	

Sample Location: North Creek byOaksCrkCt

Collection Date/Time: 05/14/2018 12:15

Field ID: G3SD0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992823	EPA 180.1 Rev. 2.0	Turbidity	3.5	A	NTU	P345364	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P345579	
		Sulfate	560		mg SO4/L	P345582	
	SM 2120 B	Color (true)	58		PCU	P345341	
	SM 2320 B-97	Total Alkalinity	331		mg CaCO3/L	P345631	
	SM 2540 C-97	TDS	1.35E+03		mg/L	P345724	
	SM 2540 D-97	TSS	3	I	mg/L	P345716	
	SM 4500 F-C-97	Fluoride	0.50		mg F/L	P345632	
1992825	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P345574	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P345566	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.52		mg N/L	P345508	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P345514	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P345625	
1992827	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P345367	

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.

Sample Location: South Creek @ HonoreAve

Collection Date/Time: 05/14/2018 11:30

Field ID: G3SD0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992851	EPA 8321B	2,4-D	0.0027	I	ug/L	P345390	
		Bentazon	0.038		ug/L	P345390	
		MCP	0.0020	U	ug/L	P345390	
		Triclopyr**	0.0040	U	ug/L	P345390	
		Imidacloprid	0.0020	U	ug/L	P345390	MS

Field ID: G3SD0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992851	EPA 8321B	Diuron	0.0020	U	ug/L	P345390	
		Pyraclostrobin**	0.0020	U	ug/L	P345390	
		Primidone**	0.035		ug/L	P345390	
		Linuron	0.0040	U	ug/L	P345390	
		Acetaminophen**	0.0080	U	ug/L	P345390	MS
		Fenuron	0.016	U	ug/L	P345390	
		Imazapyr**	0.19		ug/L	P345390	
		Carbamazepine**	0.0071		ug/L	P345390	
		Fluridone**	0.070		ug/L	P345390	
		Hydrocodone**	8.0E-04	U	ug/L	P345390	
		Sucralose**	6.3		ug/L	P345129	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345364

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P345579

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P345582

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P345569

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P345574

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P345566

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345446

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345514

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345367

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

Reference Method: EPA 8321B
Batch ID: P345129

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P345390

Component	Result	Code	Units
2,4-D	0.00200	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.00E-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	0.00200	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.00400	U	ug/L

Reference Method: SM 2120 B
Batch ID: P345341

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P345631

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

Reference Method: SM 2540 C-97
Batch ID: P345724

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P345716

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345632

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P345625

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345579

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345582

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345569

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345574

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345574

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: P345566

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345446

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: P345514

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: P345367

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P345129

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	113		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P345390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	74.0		P	40 - 150
Acetaminophen	125		P	30 - 150
Bentazon	125		P	30 - 150
Carbamazepine	80.1		P	40 - 150
Diuron	76.5		P	40 - 150
Fenuron	94.6		P	40 - 150
Fluridone	84.8		P	40 - 150
Hydrocodone	95.8		P	40 - 150
Imazapyr	82.2		P	40 - 150
Imidacloprid	103		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P345390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	90.9		P	40 - 150
MCPP	84.4		P	40 - 150
Primidone	95.9		P	40 - 150
Pyraclostrobin	78.6		P	40 - 150
Triclopyr	82.8		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P345631

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

Reference Method: SM 4500 F-C-97
Batch ID: P345632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345625

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992772	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992772	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345569

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992720	Ammonia-N	97.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992825	Ammonia-N	99.3	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992776	NO2NO3-N	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992824	Total-P	107	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992907	Total-P	97.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992649	O-Phosphate-P	99.1	98.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P345129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992563	Sucralose	111	107	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P345390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1993445	2,4-D	106	91.6	P/P	40 - 150
1993445	Acetaminophen	139	155	P/F	30 - 150
1993445	Bentazon	92.4	102	P/P	30 - 150
1993445	Carbamazepine	57.4	60.7	P/P	40 - 150
1993445	Diuron	48.4	56.9	P/P	40 - 150
1993445	Fenuron	71.3	78.6	P/P	40 - 150
1993445	Fluridone	62.5	68.5	P/P	40 - 150
1993445	Hydrocodone	95.3	104	P/P	40 - 150
1993445	Imazapyr	65.0	98.2	P/P	40 - 150
1993445	Imidacloprid	164	180	F/F	40 - 160
1993445	Linuron	69.7	86.3	P/P	40 - 150
1993445	MCP	119	117	P/P	40 - 150
1993445	Primidone	87.7	95.7	P/P	40 - 150
1993445	Pyraclostrobin	78.8	85.3	P/P	40 - 150
1993445	Triclopyr	130	132	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P345632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992904	Fluoride	95.0	95.0	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P345625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992936	Organic Carbon	99.6	98.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992823	Turbidity	0.866	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P345579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992772	Chloride	2.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P345582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992772	Sulfate	1.52	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P345569

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992720	Ammonia-N	1.84	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P345574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992825	Ammonia-N	1.90	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P345566

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992915	Kjeldahl Nitrogen	1.99	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992776	NO2NO3-N	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992824	Total-P	3.93	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992907	Total-P	2.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992649	O-Phosphate-P	0.202	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P345129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992563	Sucralose	3.82	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P345390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1993445	2,4-D	12.8	Spike	P	0 - 30
1993445	Acetaminophen	10.8	Spike	P	0 - 30
1993445	Bentazon	6.76	Spike	P	0 - 30
1993445	Carbamazepine	5.60	Spike	P	0 - 30
1993445	Diuron	7.61	Spike	P	0 - 30
1993445	Fenuron	9.73	Spike	P	0 - 30
1993445	Fluridone	6.70	Spike	P	0 - 30
1993445	Hydrocodone	9.14	Spike	P	0 - 30
1993445	Imazapyr	7.38	Spike	P	0 - 30
1993445	Imidacloprid	6.94	Spike	P	0 - 30
1993445	Linuron	21.3	Spike	P	0 - 30
1993445	MCP	1.09	Spike	P	0 - 30
1993445	Primidone	8.74	Spike	P	0 - 30
1993445	Pyraclostrobin	7.87	Spike	P	0 - 30
1993445	Triclopyr	1.43	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P345341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992774	Color (true)	2.25	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P345631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992904	Total Alkalinity	0.528	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P345724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992822	TDS	4.68	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P345632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992904	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P345625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992936	Organic Carbon	0.598	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: 1992850
 Field Sample ID: G3SD0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	75.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	129	P	30 - 160
EPA 8321B	Carbamazepine-d10	48.1	P	30 - 160
EPA 8321B	Diuron-d6	36.6	P	30 - 160
EPA 8321B	Primidone-d5	90.5	P	30 - 160
EPA 8321B	Sucralose-d6	146	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1992851
Field Sample ID: G3SD0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	58.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	133	P	30 - 160
EPA 8321B	Carbamazepine-d10	47.6	P	30 - 160
EPA 8321B	Diuron-d6	51.3	P	30 - 160
EPA 8321B	Primidone-d5	85.9	P	30 - 160
EPA 8321B	Sucralose-d6	132	P	40 - 160

Lab Sample ID: 1992852
Field Sample ID: G3SD0089

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	55.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	139	P	30 - 160
EPA 8321B	Carbamazepine-d10	55.3	P	30 - 160
EPA 8321B	Diuron-d6	50.7	P	30 - 160
EPA 8321B	Primidone-d5	89.3	P	30 - 160
EPA 8321B	Sucralose-d6	116	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A83897
Included Lab Sample IDs: 1992822, 1992823

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.9	99.1	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83908
Included Lab Sample IDs: 1992822, 1992823

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83910
Included Lab Sample IDs: 1992826, 1992827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	96.7	P/P	90 - 110
O-Phosphate-P	97.8	97.0	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A83978
Included Lab Sample IDs: 1992850, 1992851, 1992852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	114	P/P	60 - 160
Sucralose	114	105	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83979
Included Lab Sample IDs: 1992824, 1992825

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84010
Included Lab Sample IDs: 1992824

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84014
Included Lab Sample IDs: 1992825

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84015
Included Lab Sample IDs: 1992822, 1992823

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

Reference Method: SM 5310 B-00
Run ID: A84034
Included Lab Sample IDs: 1992824, 1992825

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A84037
Included Lab Sample IDs: 1992822, 1992823

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A84037
Included Lab Sample IDs: 1992822, 1992823

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84065
Included Lab Sample IDs: 1992824

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84104

Included Lab Sample IDs: 1992825

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84127

Included Lab Sample IDs: 1992824, 1992825

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	95.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84268

Included Lab Sample IDs: 1992850, 1992851, 1992852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	108	106	P/P	50 - 150
2,4-D	90.4	90.0	P/P	50 - 150
Acetaminophen	131	129	P/P	60 - 150
Bentazon	97.9	93.4	P/P	50 - 150
Carbamazepine	109	95.6	P/P	60 - 150
Diuron	109	109	P/P	60 - 150
Fenuron	105	109	P/P	60 - 150
Fluridone	110	106	P/P	60 - 160
Hydrocodone	109	107	P/P	60 - 150
Imazapyr	98.7	99.3	P/P	50 - 150
Imidacloprid	104	109	P/P	60 - 150
Linuron	97.6	103	P/P	60 - 150
MCP	111	110	P/P	50 - 150
Primidone	106	104	P/P	60 - 150
Pyraclostrobin	105	100	P/P	60 - 150
Triclopyr	116	102	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A84278

Included Lab Sample IDs: 1992850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imazapyr	99.8	101	P/P	50 - 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				0.866	
EPA 300.0 Rev. 2.1	Chloride	101	102		2.01	
	Sulfate	102	104		1.52	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 350.1 Rev. 2.0	Ammonia-N	102	97.8	100		1.84
	Ammonia-N	101	99.3	103		1.90
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.9				1.99
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	103	105		1.16
EPA 365.1 Rev. 2.0	Total-P	100	107	98.7		3.93
	Total-P	100	97.8	101		2.95
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	99.1	98.9		0.202
EPA 8321B	2,4-D	74.0	106	91.6		12.8
	Acetaminophen	125	139	155		10.8
	Bentazon	125	92.4	102		6.76
	Carbamazepine	80.1	57.4	60.7		5.60
	Diuron	76.5	48.4	56.9		7.61
	Fenuron	94.6	71.3	78.6		9.73
	Fluridone	84.8	62.5	68.5		6.70
	Hydrocodone	95.8	95.3	104		9.14
	Imazapyr	82.2	65.0	98.2		7.38
	Imidacloprid	103	164	180		6.94
	Linuron	90.9	69.7	86.3		21.3
	MCPP	84.4	119	117		1.09
	Primidone	95.9	87.7	95.7		8.74
	Pyraclostrobin	78.6	78.8	85.3		7.87
	Sucralose	113	111	107		3.82
	Triclopyr	82.8	130	132		1.43
SM 2120 B	Color (true)					2.25
SM 2320 B-97	Total Alkalinity	102				0.528
SM 2540 C-97	TDS					4.68
SM 4500 F-C-97	Fluoride	94.8	95.0	95.0		0.0
SM 5310 B-00	Organic Carbon	99.4	99.6	98.9		0.598

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1992822, 1992823
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1992822, 1992823
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1992822, 1992823
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1992824, 1992825
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1992824, 1992825
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1992824, 1992825
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1992824, 1992825
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1992826, 1992827
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1992850, 1992851, 1992852
SM 2120 B / E31780	True Color measured at 450 nm	1992822, 1992823
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1992822, 1992823
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1992822, 1992823
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1992822, 1992823
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1992822, 1992823
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1992824, 1992825

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	05/15/2018			05/15/2018 15:35	William L. Brown IV	1992822, 1992823
EPA 300.0 Rev. 2.1	05/15/2018			05/17/2018 22:41	Lipi Saha	1992822
	05/15/2018			05/17/2018 22:53	Lipi Saha	1992823
EPA 350.1 Rev. 2.0	05/15/2018			05/18/2018 11:24	Julia Storbeck	1992825
	05/15/2018			05/18/2018 11:26	Ping Hua	1992824
EPA 351.2 Rev. 2.0	05/15/2018	05/18/2018 13:15	Adrian Shelby	05/24/2018 09:24	Joseph Suarez	1992824
	05/15/2018	05/18/2018 13:15	Adrian Shelby	05/24/2018 09:25	Joseph Suarez	1992825
EPA 353.2 Rev. 2.0	05/15/2018			05/17/2018 12:54	Lauren Bottorf	1992824
	05/15/2018			05/17/2018 12:55	Lauren Bottorf	1992825
EPA 365.1 Rev. 2.0	05/15/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 10:55	Beverly Y. Sanders	1992824
	05/15/2018	05/17/2018 13:40	Sima Feizi	05/22/2018 14:17	Beverly Y. Sanders	1992825
EPA 365.1 Rev. 2.0 dissolved	05/15/2018			05/15/2018 16:09	Megan Treadwell	1992827
	05/15/2018			05/15/2018 16:28	Megan Treadwell	1992826
EPA 8321B	05/15/2018	05/16/2018 13:00	Juyoung Kim	05/16/2018 16:19	Juyoung Kim	1992850
	05/15/2018	05/16/2018 13:00	Juyoung Kim	05/16/2018 16:37	Juyoung Kim	1992851
	05/15/2018	05/16/2018 13:00	Juyoung Kim	05/16/2018 17:14	Juyoung Kim	1992852
	05/15/2018	05/18/2018 10:00	Hoor Shaik	05/19/2018 05:59	Juyoung Kim	1992850
	05/15/2018	05/18/2018 10:00	Hoor Shaik	05/19/2018 06:34	Juyoung Kim	1992851
	05/15/2018	05/18/2018 10:00	Hoor Shaik	05/19/2018 07:08	Juyoung Kim	1992852
	05/15/2018	05/18/2018 10:00	Hoor Shaik	05/19/2018 21:33	Juyoung Kim	1992850
	05/15/2018	05/18/2018 10:00	Hoor Shaik	05/19/2018 22:08	Juyoung Kim	1992851
	05/15/2018	05/18/2018 10:00	Hoor Shaik	05/19/2018 22:42	Juyoung Kim	1992852
	05/15/2018	05/18/2018 10:00	Hoor Shaik	05/22/2018 13:01	Juyoung Kim	1992850
	05/15/2018	05/18/2018 10:00	Hoor Shaik	06/01/2018 00:47	Juyoung Kim	1992850
SM 2120 B	05/15/2018			05/15/2018 14:59	Julia Storbeck	1992822
	05/15/2018			05/15/2018 15:00	Julia Storbeck	1992823
SM 2320 B-97	05/15/2018			05/18/2018 20:18	Dale L. Simmons	1992822
	05/15/2018			05/18/2018 20:30	Dale L. Simmons	1992823
SM 2540 C-97	05/15/2018			05/16/2018 15:26	Yijie Li	1992822, 1992823
SM 2540 D-97	05/15/2018			05/16/2018 15:26	Yijie Li	1992822, 1992823
SM 4500 F-C-97	05/15/2018			05/18/2018 20:18	Dale L. Simmons	1992822
	05/15/2018			05/18/2018 20:30	Dale L. Simmons	1992823
SM 5310 B-00	05/15/2018			05/19/2018 01:22	Julia Storbeck	1992824
	05/15/2018			05/19/2018 01:34	Julia Storbeck	1992825