

Chemical Analysis Report

SO-DIST-2018-04-05-01

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-2018-04-02-67**
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: 26-APR-2018 15:12

A handwritten signature in black ink, appearing to read "Liang Lin", 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: 04/04/2018 10:30

Field ID: G3SD0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981548	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P342868	
	EPA 300.0 Rev. 2.1	Chloride	69		mg Cl/L	P343052	
		Sulfate	100		mg SO4/L	P343055	
	SM 2120 B	Color (true)	49		PCU	P342843	
	SM 2320 B-97	Total Alkalinity	266		mg CaCO3/L	P343504	
	SM 2540 C-97	TDS	526	J	mg/L	P343517	
	SM 2540 D-97	TSS	2	U	mg/L	P343164	
	SM 4500 F-C-97	Fluoride	0.46		mg F/L	P343508	
1981550	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P343442	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P343009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.58		mg N/L	P343206	
	EPA 365.1 Rev. 2.0	Total-P	0.068		mg P/L	P343188	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P343332	
1981552	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P342890	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2540 C-97: A constant dry weight was not attained.

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

Sample Location: Matheny Creek @BenevaRd

Collection Date/Time: 04/04/2018 11:00

Field ID: G3SD0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981588	EPA 8321B	2,4-D	0.012		ug/L	P342820	
		Sucralose**	0.11	U	ug/L	P342722	
		Bentazon	0.042		ug/L	P342820	
		MCP	0.0053	I	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.0087		ug/L	P342820	
		Diuron	0.0020	U	ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.0040	U	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	U	ug/L	P342820	
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	44		ug/L	P342820	
		Carbamazepine**	8.7E-04	I	ug/L	P342820	
		Fluridone**	0.068		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	
		Glyphosate**	200	Q	ug/L	P343078	
		AMPA**	5.3	Q	ug/L	P343078	
		Endothal**	0.10	UQ	ug/L	P343078	
		Glufosinate**	0.10	UQ	ug/L	P343078	

Ref. Method and Comment:

EPA 8321B: "Q" - Sample analysis expired due to a late test request.

Sample Location: North Creek(Tidal)@US41

Collection Date/Time: 04/04/2018 11:30

Field ID: G3SD0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981589	EPA 8321B	2,4-D	0.0048	I	ug/L	P342820	
		Sucralose**	0.45		ug/L	P342722	
		Bentazon	0.0086		ug/L	P342820	
		MCP	0.0020	U	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.12		ug/L	P342820	
		Diuron	0.012		ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.011	I	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	U	ug/L	P342820	
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.090		ug/L	P342820	
		Carbamazepine**	0.0019		ug/L	P342820	
		Fluridone**	0.061		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Sample Location: North Creek (Tidal) @ US41

Collection Date/Time: 04/04/2018 11:35

Field ID: G3SD0089_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981590	EPA 8321B	2,4-D	0.0047	I	ug/L	P342820	
		Sucralose**	0.43	I	ug/L	P342722	
		Bentazon	0.0083		ug/L	P342820	
		MCP	0.0020	U	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.10		ug/L	P342820	
		Diuron	0.011		ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.0096	I	ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	U	ug/L	P342820	
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.083		ug/L	P342820	
		Carbamazepine**	0.0019		ug/L	P342820	
		Fluridone**	0.060		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Sample Location: North Creek byOaksCrkCt

Collection Date/Time: 04/04/2018 12:00

Field ID: G3SD0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981549	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P342869	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P343052	

Field ID: G3SD0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981549	EPA 300.0 Rev. 2.1	Sulfate	470		mg SO4/L	P343055	
	SM 2120 B	Color (true)	53		PCU	P342843	
	SM 2320 B-97	Total Alkalinity	361		mg CaCO3/L	P343504	
	SM 2540 C-97	TDS	1.29E+03		mg/L	P343517	
	SM 2540 D-97	TSS	2	U	mg/L	P343164	
	SM 4500 F-C-97	Fluoride	0.47		mg F/L	P343508	
1981551	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P343442	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P343009	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.47		mg N/L	P343206	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P343188	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P343332	
1981553	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P342890	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: South Creek @ HonoreAve

Collection Date/Time: 04/04/2018 12:25

Field ID: G3SD0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1981592	EPA 8321B	2,4-D	0.0056	I	ug/L	P342820	
		Sucralose**	3.3		ug/L	P342722	
		Bentazon	0.025		ug/L	P342820	
		MCP	0.0020	U	ug/L	P342820	
		Triclopyr**	0.0040	U	ug/L	P342820	
		Imidacloprid	0.0021	I	ug/L	P342820	
		Diuron	0.0020	U	ug/L	P342820	
		Pyraclostrobin**	0.0020	U	ug/L	P342820	
		Primidone**	0.054		ug/L	P342820	
		Linuron	0.0040	U	ug/L	P342820	
		Acetaminophen**	0.0080	U	ug/L	P342820	
		Fenuron	0.016	U	ug/L	P342820	
		Imazapyr**	0.15		ug/L	P342820	
		Carbamazepine**	0.015		ug/L	P342820	
		Fluridone**	0.053		ug/L	P342820	
		Hydrocodone**	8.0E-04	U	ug/L	P342820	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P342868

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342869

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343052

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343055

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343442

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343009

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343206

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343188

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342890

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

Reference Method: EPA 8321B
Batch ID: P342722

Component	Result	Code	Units
Sucralose	0.11	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P342820

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	0.029	I	ug/L
Fluridone	8.0E-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: P343078

Component	Result	Code	Units
AMPA	0.10	U	ug/L
Endothall	0.10	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L

Reference Method: SM 2120 B
Batch ID: P342843

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343504

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

Reference Method: SM 2540 C-97
Batch ID: P343517

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343164

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P343508

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343332

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: P343052

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343055

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343442

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343009

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343206

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343188

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342890

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342890

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

Reference Method: EPA 8321B
Batch ID: P342722

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

Reference Method: EPA 8321B
Batch ID: P342820

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	80.7		P	40 - 150
Acetaminophen	116		P	30 - 150
Bentazon	76.3		P	30 - 150
Carbamazepine	94.0		P	40 - 150
Diuron	75.4		P	40 - 150
Fenuron	121		P	40 - 150
Fluridone	66.7		P	40 - 150
Hydrocodone	131		P	40 - 150
Imazapyr	74.7		P	40 - 150
Imidacloprid	112		P	40 - 160
Linuron	86.0		P	40 - 150
MCPP	75.0		P	40 - 150
Primidone	110		P	40 - 150
Pyraclostrobin	79.6		P	40 - 150
Triclopyr	75.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	89.0		P	40 - 140
Endothall	105		P	40 - 140
Glufosinate	68.6		P	40 - 140
Glyphosate	65.6		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P343504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343508

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P343332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981498	Chloride	100	99.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981498	Sulfate	101	100	P/P	90 - 110
1981652	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981500	Ammonia-N	95.5	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343009

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981550	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981654	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981545	Total-P	105	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981552	O-Phosphate-P	95.8	97.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P342722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980974	Sucralose	64.8	66.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342820

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981583	2,4-D	73.9	74.6	P/P	40 - 150
1981583	Acetaminophen	108	137	P/P	30 - 150
1981583	Bentazon	42.7	42.6	P/P	30 - 150
1981583	Carbamazepine	87.2	93.9	P/P	40 - 150
1981583	Diuron	71.9	72.9	P/P	40 - 150
1981583	Fenuron	105	114	P/P	40 - 150
1981583	Fluridone	61.4	64.4	P/P	40 - 150
1981583	Hydrocodone	111	127	P/P	40 - 150
1981583	Imazapyr	47.6	58.1	P/P	40 - 150
1981583	Imidacloprid	116	147	P/P	40 - 160
1981583	Linuron	88.0	95.1	P/P	40 - 150
1981583	MCP	56.6	57.9	P/P	40 - 150
1981583	Primidone	110	132	P/P	40 - 150
1981583	Pyraclostrobin	72.7	85.9	P/P	40 - 150
1981583	Triclopyr	60.5	60.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981837	AMPA	88.5	82.1	P/P	40 - 140
1981837	Endothall	95.6	98.7	P/P	40 - 140
1981837	Glufosinate	72.8	75.6	P/P	40 - 140
1981837	Glyphosate	79.2	86.0	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P343508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982014	Fluoride	99.1	99.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981461	Organic Carbon	96.0	97.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981460	Turbidity	4.02	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981549	Turbidity	14.1	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981498	Chloride	0.248	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981498	Sulfate	0.652	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981500	Ammonia-N	0.443	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981550	Kjeldahl Nitrogen	0.819	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981654	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981545	Total-P	3.99	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981552	O-Phosphate-P	1.09	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P342722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980974	Sucralose	2.61	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P342820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981583	2,4-D	0.977	Spike	P	0 - 30
1981583	Acetaminophen	23.3	Spike	P	0 - 30
1981583	Bentazon	0.329	Spike	P	0 - 30
1981583	Carbamazepine	7.02	Spike	P	0 - 30
1981583	Diuron	1.43	Spike	P	0 - 30
1981583	Fenuron	8.75	Spike	P	0 - 30
1981583	Fluridone	4.73	Spike	P	0 - 30
1981583	Hydrocodone	12.8	Spike	P	0 - 30
1981583	Imazapyr	15.7	Spike	P	0 - 30
1981583	Imidacloprid	23.7	Spike	P	0 - 30
1981583	Linuron	7.80	Spike	P	0 - 30
1981583	MCP	2.40	Spike	P	0 - 30
1981583	Primidone	16.9	Spike	P	0 - 30
1981583	Pyraclostrobin	16.6	Spike	P	0 - 30
1981583	Triclopyr	0.645	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981837	AMPA	7.57	Spike	P	0 - 30
1981837	Endothall	3.11	Spike	P	0 - 30
1981837	Glufosinate	3.78	Spike	P	0 - 30
1981837	Glyphosate	8.27	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P342843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981470	Color (true)	0.672	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P343504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982014	Total Alkalinity	0.553	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981556	TDS	9.60	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P343508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982014	Fluoride	0.520	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981461	Organic Carbon	1.01	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: 1981588
Field Sample ID: G3SD0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	73.4	P	30 - 160
EPA 8321B	2,4-D-d3	73.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	135	P	30 - 160
EPA 8321B	Acetaminophen-d4	135	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	85.4	P	30 - 160
EPA 8321B	Diuron-d6	85.4	P	30 - 160
EPA 8321B	Endothall-d6	91.5	P	40 - 160
EPA 8321B	Endothall-d6	91.5	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	61.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	61.7	P	40 - 160
EPA 8321B	Primidone-d5	117	P	30 - 160
EPA 8321B	Primidone-d5	117	P	30 - 160
EPA 8321B	Sucralose-d6	63.9	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1981589
Field Sample ID: G3SD0089

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	151	P	30 - 160
EPA 8321B	Carbamazepine-d10	116	P	30 - 160
EPA 8321B	Diuron-d6	90.9	P	30 - 160
EPA 8321B	Primidone-d5	137	P	30 - 160
EPA 8321B	Sucralose-d6	71.5	P	40 - 160

Lab Sample ID: 1981590
Field Sample ID: G3SD0089_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	144	P	30 - 160
EPA 8321B	Carbamazepine-d10	105	P	30 - 160
EPA 8321B	Diuron-d6	86.5	P	30 - 160
EPA 8321B	Primidone-d5	127	P	30 - 160
EPA 8321B	Sucralose-d6	71.5	P	40 - 160

Lab Sample ID: 1981592
Field Sample ID: G3SD0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	87.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	147	P	30 - 160
EPA 8321B	Carbamazepine-d10	105	P	30 - 160
EPA 8321B	Diuron-d6	85.5	P	30 - 160
EPA 8321B	Primidone-d5	134	P	30 - 160
EPA 8321B	Sucralose-d6	65.3	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83001
Included Lab Sample IDs: 1981548, 1981549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	100	99.8	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A83061
Included Lab Sample IDs: 1981548, 1981549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	104	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A83067

Included Lab Sample IDs: 1981548, 1981549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A83075

Included Lab Sample IDs: 1981552, 1981553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	94.2	93.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83110

Included Lab Sample IDs: 1981588, 1981589, 1981590, 1981592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.3	95.5	P/P	50 - 150
Acetaminophen	110	104	P/P	60 - 150
Bentazon	90.5	89.8	P/P	50 - 150
Carbamazepine	112	108	P/P	60 - 150
Diuron	115	119	P/P	60 - 150
Fenuron	105	109	P/P	60 - 150
Fluridone	120	119	P/P	60 - 160
Hydrocodone	121	123	P/P	60 - 150
Imazapyr	74.6	83.6	P/P	50 - 150
Imidacloprid	97.7	106	P/P	60 - 150
Linuron	132	123	P/P	60 - 150
MCPP	101	106	P/P	50 - 150
Primidone	112	108	P/P	60 - 150
Pyraclostrobin	116	113	P/P	60 - 150
Triclopyr	102	103	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83164

Included Lab Sample IDs: 1981550, 1981551

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83173

Included Lab Sample IDs: 1981550, 1981551

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

Reference Method: EPA 8321B

Run ID: A83192

Included Lab Sample IDs: 1981588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A83192

Included Lab Sample IDs: 1981588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	90.3	103	P/P	60 - 150
Endothall	99.7	105	P/P	60 - 150
Glufosinate	81.9	105	P/P	60 - 150
Glyphosate	106	126	P/P	60 - 150
Sucralose	110	111	P/P	60 - 130

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83210

Included Lab Sample IDs: 1981550, 1981551

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

Reference Method: SM 5310 B-00

Run ID: A83211

Included Lab Sample IDs: 1981550, 1981551

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	96.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83249

Included Lab Sample IDs: 1981550, 1981551

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	99.7	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83260

Included Lab Sample IDs: 1981588, 1981589, 1981590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	106	84.8	P/P	50 - 150
Imazapyr	88.3	76.9	P/P	50 - 150

Reference Method: SM 2320 B-97

Run ID: A83264

Included Lab Sample IDs: 1981548, 1981549

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

Reference Method: SM 4500 F-C-97

Run ID: A83264

Included Lab Sample IDs: 1981548, 1981549

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

Quality Assurance Report Calibration Verification

* 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					4.02	
	Turbidity					14.1	
EPA 300.0 Rev. 2.1	Chloride	99.4	100	99.7			0.248
	Sulfate	95.9	101	100	99.5		0.652
EPA 350.1 Rev. 2.0	Ammonia-N	93.6	95.5	95.9			0.443
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	102			0.819
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	107	106	106			0.943
EPA 365.1 Rev. 2.0	Total-P	102	105	98.7			3.99
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	95.8	97.1			1.09
EPA 8321B	2,4-D	80.7	73.9	74.6			0.977
	Acetaminophen	116	108	137			23.3
	AMPA	89.0	88.5	82.1			7.57
	Bentazon	76.3	42.7	42.6			0.329
	Carbamazepine	94.0	87.2	93.9			7.02
	Diuron	75.4	71.9	72.9			1.43
	Endothall	105	95.6	98.7			3.11
	Fenuron	121	105	114			8.75
	Fluridone	66.7	61.4	64.4			4.73
	Glufosinate	68.6	72.8	75.6			3.78
	Glyphosate	65.6	79.2	86.0			8.27
	Hydrocodone	131	111	127			12.8
	Imazapyr	74.7	47.6	58.1			15.7
	Imidacloprid	112	116	147			23.7
	Linuron	86.0	88.0	95.1			7.80
	MCPP	75.0	56.6	57.9			2.40
	Primidone	110	110	132			16.9
	Pyraclostrobin	79.6	72.7	85.9			16.6
	Sucralose	121	64.8	66.5			2.61
	Triclopyr	75.4	60.5	60.1			0.645
SM 2120 B	Color (true)					0.672	
SM 2320 B-97	Total Alkalinity	100				0.553	
SM 2540 C-97	TDS					9.60	
SM 4500 F-C-97	Fluoride	96.9	99.1	99.8			0.520
SM 5310 B-00	Organic Carbon	97.8	96.0	97.9			1.01

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1981548, 1981549
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1981548, 1981549
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1981548, 1981549
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1981550, 1981551

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1981550, 1981551
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1981550, 1981551
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1981550, 1981551
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1981552, 1981553
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1981588
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1981588, 1981589, 1981590, 1981592
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1981588, 1981589, 1981590, 1981592
SM 2120 B / E31780	True Color measured at 450 nm	1981548, 1981549
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1981548, 1981549
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1981548, 1981549
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1981548, 1981549
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1981548, 1981549
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1981550, 1981551

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	04/05/2018			04/05/2018 16:26	William L. Brown IV	1981548, 1981549
EPA 300.0 Rev. 2.1	04/05/2018			04/07/2018 05:05	Lipi Saha	1981548
	04/05/2018			04/07/2018 05:17	Lipi Saha	1981549
EPA 350.1 Rev. 2.0	04/05/2018			04/13/2018 12:42	Julia Storbeck	1981550
	04/05/2018			04/13/2018 12:44	Julia Storbeck	1981551
EPA 351.2 Rev. 2.0	04/05/2018	04/09/2018 10:15	Adrian Shelby	04/11/2018 13:01	Joseph Suarez	1981550
	04/05/2018	04/09/2018 10:15	Adrian Shelby	04/11/2018 13:06	Joseph Suarez	1981551
EPA 353.2 Rev. 2.0	04/05/2018			04/11/2018 13:24	Lauren Bottorf	1981551
	04/05/2018			04/11/2018 13:52	Lauren Bottorf	1981550
EPA 365.1 Rev. 2.0	04/05/2018	04/11/2018 13:08	Sima Feizi	04/13/2018 08:52	Beverly Y. Sanders	1981550
	04/05/2018	04/11/2018 13:08	Sima Feizi	04/13/2018 08:55	Beverly Y. Sanders	1981551
EPA 365.1 Rev. 2.0 dissolved	04/05/2018			04/05/2018 15:17	Megan Treadwell	1981552
	04/05/2018			04/05/2018 16:11	Megan Treadwell	1981553
EPA 8321B	04/05/2018	04/05/2018 15:30	Julie Michelle Frank	04/11/2018 04:53	Julie Michelle Frank	1981588
	04/05/2018	04/05/2018 15:30	Julie Michelle Frank	04/11/2018 05:09	Julie Michelle Frank	1981589
	04/05/2018	04/05/2018 15:30	Julie Michelle Frank	04/11/2018 05:25	Julie Michelle Frank	1981590
	04/05/2018	04/05/2018 15:30	Julie Michelle Frank	04/11/2018 05:40	Julie Michelle Frank	1981592
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/07/2018 16:58	Julie Michelle Frank	1981588
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/07/2018 17:32	Julie Michelle Frank	1981589
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/07/2018 18:07	Julie Michelle Frank	1981590
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/07/2018 18:42	Julie Michelle Frank	1981592
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 07:57	Julie Michelle Frank	1981588
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 08:32	Julie Michelle Frank	1981589
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 09:07	Julie Michelle Frank	1981590
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/08/2018 09:41	Julie Michelle Frank	1981592
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/09/2018 18:29	Julie Michelle Frank	1981588
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/09/2018 19:38	Julie Michelle Frank	1981589
	04/05/2018	04/06/2018 10:00	Hoor Shaik	04/09/2018 20:13	Julie Michelle Frank	1981590
	04/05/2018	04/10/2018 14:00	Hoor Shaik	04/11/2018 16:27	Julie Michelle Frank	1981588
	04/05/2018	04/10/2018 14:00	Hoor Shaik	04/11/2018 16:42	Julie Michelle Frank	1981588
SM 2120 B	04/05/2018			04/05/2018 15:18	Tanya Welborn	1981548, 1981549
SM 2320 B-97	04/05/2018			04/16/2018 06:38	Dale L. Simmons	1981548
	04/05/2018			04/16/2018 08:36	Dale L. Simmons	1981549
SM 2540 C-97	04/05/2018			04/06/2018 15:15	DeAsia Armster	1981548, 1981549
SM 2540 D-97	04/05/2018			04/06/2018 16:00	DeAsia Armster	1981548, 1981549
SM 4500 F-C-97	04/05/2018			04/16/2018 06:38	Dale L. Simmons	1981548
	04/05/2018			04/16/2018 08:36	Dale L. Simmons	1981549
SM 5310 B-00	04/05/2018			04/12/2018 07:46	Julia Storbeck	1981550
	04/05/2018			04/12/2018 08:01	Julia Storbeck	1981551