

Chemical Analysis Report

SO-DIST-2018-02-16-02

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

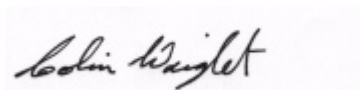
Event Description: **Sarasota Streams: Phillippe, Matheny, North (Tidal), North, South**
Request ID: **RQ-2018-02-19-15**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Maryann Dugan

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Certified by: Colin Wright, Program Administrator

Date Certified: 08-MAR-2018 13:33

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over a light purple rectangular 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: 02/15/2018 12:35

Field ID: G3SD0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968575	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P340111	
	EPA 300.0 Rev. 2.1	Chloride	64		mg Cl/L	P340401	
		Sulfate	100		mg SO4/L	P340402	
	SM 2120 B	Color (true)	57		PCU	P340108	
	SM 2320 B-97	Total Alkalinity	221		mg CaCO3/L	P340616	
	SM 2540 C-97	TDS	594		mg/L	P340777	
	SM 2540 D-97	TSS	6	I	mg/L	P340761	
	SM 4500 F-C-97	Fluoride	0.38		mg F/L	P340618	
1968577	EPA 350.1 Rev. 2.0	Ammonia-N	0.37		mg N/L	P340678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P340404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.78		mg N/L	P340496	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P340417	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P340534	
1968579	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P340155	

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: Matheny Creek @BenevaRd

Collection Date/Time: 02/15/2018 12:00

Field ID: G3SD0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968588	EPA 8321B	2,4-D	0.0035	I	ug/L	P340165	
		Sucralose**	0.16		ug/L	P340095	
		Bentazon	0.040		ug/L	P340165	
		MCP	0.0024	I	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	
		Imidacloprid	0.028		ug/L	P340165	
		Diuron	0.0020	U	ug/L	P340165	
		Primidone**	0.0040	U	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	
		Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Carbamazepine**	0.0023		ug/L	P340165	
		Fluridone**	0.32		ug/L	P340165	

Sample Location: North Creek(Tidal)@US41

Collection Date/Time: 02/15/2018 11:20

Field ID: G3SD0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968589	EPA 8321B	2,4-D	0.10		ug/L	P340165	
		Sucralose**	0.94		ug/L	P340095	
		Bentazon	0.0094		ug/L	P340165	
		MCP	0.0020	U	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	

Field ID: G3SD0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968589	EPA 8321B	Imidacloprid	0.36		ug/L	P340165	
		Diuron	0.0049	I	ug/L	P340165	
		Primidone**	0.0076	I	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	
		Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Carbamazepine**	0.0011	I	ug/L	P340165	
		Fluridone**	0.28		ug/L	P340165	

Sample Location: North Creek byOaksCrkCt

Collection Date/Time: 02/15/2018 10:50

Field ID: G3SD0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968576	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P340111	
	EPA 300.0 Rev. 2.1	Chloride	99		mg Cl/L	P340401	
		Sulfate	340		mg SO4/L	P340402	
	SM 2120 B	Color (true)	61		PCU	P340108	
	SM 2320 B-97	Total Alkalinity	325		mg CaCO3/L	P340616	
	SM 2540 C-97	TDS	1.09E+03		mg/L	P340777	
	SM 2540 D-97	TSS	2	U	mg/L	P340761	
	SM 4500 F-C-97	Fluoride	0.42		mg F/L	P340618	
1968578	EPA 350.1 Rev. 2.0	Ammonia-N	0.081		mg N/L	P340678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P340404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P340496	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P340417	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P340534	
1968580	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P340155	

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: South Creek @ HonoreAve

Collection Date/Time: 02/15/2018 09:55

Field ID: G3SD0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968590	EPA 8321B	2,4-D	0.013		ug/L	P340165	
		Sucralose**	2.4		ug/L	P340095	
		Bentazon	0.053		ug/L	P340165	
		MCP	0.0032	I	ug/L	P340165	MS
		Triclopyr**	0.0040	U	ug/L	P340165	
		Imidacloprid	0.0066	I	ug/L	P340165	
		Diuron	0.0020	U	ug/L	P340165	
		Primidone**	0.012	I	ug/L	P340165	
		Linuron	0.0040	U	ug/L	P340165	
		Acetaminophen**	0.0080	U	ug/L	P340165	
		Fenuron	0.0080	U	ug/L	P340165	
		Carbamazepine**	0.0037		ug/L	P340165	

Field ID: G3SD0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968590	EPA 8321B	Fluridone**	0.30		ug/L	P340165	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340111

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340401

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340678

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340404

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P340095

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P340165

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	0.0080	U	ug/L
Fluridone	8.0E-04	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
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P340108

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340616

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

Reference Method: SM 2540 C-97
Batch ID: P340777

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P340761

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340618

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P340534

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: P340401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340678

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: P340404

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

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

Reference Method: EPA 8321B
Batch ID: P340095

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

Reference Method: EPA 8321B
Batch ID: P340095

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	93.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	76.9		P	40 - 150
Acetaminophen	101		P	30 - 150
Bentazon	123		P	30 - 150
Carbamazepine	89.2		P	40 - 150
Diuron	82.2		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	81.9		P	40 - 150
Imidacloprid	94.8		P	40 - 160
Linuron	86.0		P	40 - 150
MCP	69.9		P	40 - 150
Primidone	91.2		P	40 - 150
Triclopyr	76.0		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P340616

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P340534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968604	Chloride	92.9		P	90 - 110
1968711	Chloride	94.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968604	Sulfate	92.3		P	90 - 110
1968711	Sulfate	93.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968547	Ammonia-N	96.9	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968554	Kjeldahl Nitrogen	98.8	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968547	NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968558	Total-P	104	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968555	O-Phosphate-P	98.7	99.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P340095

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968561	Sucralose	104	101	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968488	2,4-D	51.0	56.1	P/P	40 - 150
1968488	Acetaminophen	130	108	P/P	30 - 150
1968488	Bentazon	32.0	34.0	P/P	30 - 150
1968488	Carbamazepine	82.7	75.0	P/P	40 - 150
1968488	Diuron	72.2	60.7	P/P	40 - 150
1968488	Fenuron	86.5	75.9	P/P	40 - 150
1968488	Fluridone	66.8	53.7	P/P	40 - 150
1968488	Imidacloprid	144	127	P/P	40 - 160
1968488	Linuron	88.8	63.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P340165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968488	MCP	36.5	39.1	F/F	40 - 150
1968488	Primidone	87.0	75.9	P/P	40 - 150
1968488	Triclopyr	43.9	47.9	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P340618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968284	Fluoride	92.3	94.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967818	Organic Carbon	98.2	99.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968451	Turbidity	1.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968711	Chloride	1.05	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968711	Sulfate	0.691	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968547	Ammonia-N	1.42	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968554	Kjeldahl Nitrogen	4.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968547	NO2NO3-N	0.456	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968558	Total-P	6.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968555	O-Phosphate-P	0.303	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P340095

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968561	Sucralose	2.77	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P340165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968488	2,4-D	8.17	Spike	P	0 - 30
1968488	Acetaminophen	18.1	Spike	P	0 - 30
1968488	Bentazon	5.30	Spike	P	0 - 30
1968488	Carbamazepine	9.60	Spike	P	0 - 30
1968488	Diuron	11.7	Spike	P	0 - 30
1968488	Fenuron	13.0	Spike	P	0 - 30
1968488	Fluridone	20.4	Spike	P	0 - 30
1968488	Imidacloprid	8.00	Spike	P	0 - 30
1968488	Linuron	22.8	Spike	P	0 - 30
1968488	MCP	6.91	Spike	P	0 - 30
1968488	Primidone	13.6	Spike	P	0 - 30
1968488	Triclopyr	8.78	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P340108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968393	Color (true)	0.885	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P340616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968284	Total Alkalinity	0.00798	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P340777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968388	TDS	5.65	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P340618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968284	Fluoride	1.47	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P340534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967818	Organic Carbon	0.621	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: 1968588
 Field Sample ID: G3SD0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	46.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	141	P	30 - 160
EPA 8321B	Carbamazepine-d10	98.8	P	30 - 160
EPA 8321B	Diuron-d6	73.4	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1968589
Field Sample ID: G3SD0089

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	48.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	130	P	30 - 160
EPA 8321B	Carbamazepine-d10	87.2	P	30 - 160
EPA 8321B	Diuron-d6	74.8	P	30 - 160
EPA 8321B	Primidone-d5	104	P	30 - 160
EPA 8321B	Sucralose-d6	115	P	40 - 160

Lab Sample ID: 1968590
Field Sample ID: G3SD0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	44.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.8	P	30 - 160
EPA 8321B	Diuron-d6	71.7	P	30 - 160
EPA 8321B	Primidone-d5	91.6	P	30 - 160
EPA 8321B	Sucralose-d6	121	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A82119
Included Lab Sample IDs: 1968575, 1968576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82120
Included Lab Sample IDs: 1968575, 1968576

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82129
Included Lab Sample IDs: 1968579, 1968580

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

Reference Method: EPA 8321B
Run ID: A82169
Included Lab Sample IDs: 1968588, 1968589, 1968590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	98.3	94.0	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82190

Included Lab Sample IDs: 1968575, 1968576

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82249

Included Lab Sample IDs: 1968577, 1968578

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82255

Included Lab Sample IDs: 1968577, 1968578

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.7	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82256

Included Lab Sample IDs: 1968577, 1968578

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: SM 5310 B-00

Run ID: A82268

Included Lab Sample IDs: 1968577, 1968578

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	95.9	P/P	90 - 110
Organic Carbon	95.9	95.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82285

Included Lab Sample IDs: 1968588, 1968589, 1968590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	104	96.4	P/P	50 - 150
Acetaminophen	106	112	P/P	60 - 150
Acetaminophen	112	107	P/P	60 - 150
Bentazon	110	130	P/P	50 - 150
Carbamazepine	103	106	P/P	60 - 150
Carbamazepine	106	124	P/P	60 - 150
Diuron	116	134	P/P	60 - 150
Diuron	123	116	P/P	60 - 150
Fenuron	112	121	P/P	60 - 150
Fenuron	120	112	P/P	60 - 150
Imidacloprid	103	106	P/P	60 - 150
Imidacloprid	106	111	P/P	60 - 150
Linuron	124	131	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A82285

Included Lab Sample IDs: 1968588, 1968589, 1968590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Linuron	131	121	P/P	60 - 150
MCP	102	101	P/P	50 - 150
Primidone	108	109	P/P	60 - 150
Primidone	109	116	P/P	60 - 150
Triclopyr	98.4	104	P/P	50 - 150

Reference Method: SM 2320 B-97

Run ID: A82295

Included Lab Sample IDs: 1968575, 1968576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	100	P/P	90 - 110
Total Alkalinity	100	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82295

Included Lab Sample IDs: 1968575, 1968576

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	97.1	P/P	90 - 110
Fluoride	97.1	96.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82298

Included Lab Sample IDs: 1968588, 1968589, 1968590

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	109	109	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82317

Included Lab Sample IDs: 1968577, 1968578

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements. Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.25	
EPA 300.0 Rev. 2.1	Chloride	96.5	94.6 92.9		1.05	
	Sulfate	94.2	93.5 92.3		0.691	
EPA 350.1 Rev. 2.0	Ammonia-N	102	96.9 95.4			1.42
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	98.8 104			4.56

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 353.2 Rev. 2.0	NO2NO3-N	105	105	106		0.456
EPA 365.1 Rev. 2.0	Total-P	103	104	97.5		6.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.7	99.0		0.303
EPA 8321B	2,4-D	76.9	51.0	56.1		8.17
	Acetaminophen	101	130	108		18.1
	Bentazon	123	32.0	34.0		5.30
	Carbamazepine	89.2	82.7	75.0		9.60
	Diuron	82.2	72.2	60.7		11.7
	Fenuron	111	86.5	75.9		13.0
	Fluridone	81.9	66.8	53.7		20.4
	Imidacloprid	94.8	144	127		8.00
	Linuron	86.0	88.8	63.2		22.8
	MCPP	69.9	36.5	39.1		6.91
	Primidone	91.2	87.0	75.9		13.6
	Sucralose	93.2	104	101		2.77
	Triclopyr	76.0	43.9	47.9		8.78
SM 2120 B	Color (true)				0.885	
SM 2320 B-97	Total Alkalinity	98.8			0.0079	
SM 2540 C-97	TDS				5.65	
SM 4500 F-C-97	Fluoride	94.7	92.3	94.5		1.47
SM 5310 B-00	Organic Carbon	95.8	98.2	99.1		0.621

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1968575, 1968576
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1968575, 1968576
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1968575, 1968576
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1968577, 1968578
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1968577, 1968578
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1968577, 1968578
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1968577, 1968578
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1968579, 1968580
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1968588, 1968589, 1968590
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1968588, 1968589, 1968590
SM 2120 B / E31780	True Color measured at 450 nm	1968575, 1968576
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1968575, 1968576
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1968575, 1968576
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1968575, 1968576
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1968575, 1968576
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1968577, 1968578

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	02/16/2018			02/16/2018 15:13	Tanya Welborn	1968575, 1968576
EPA 300.0 Rev. 2.1	02/16/2018			02/21/2018	Julia Storbeck	1968575, 1968576
EPA 350.1 Rev. 2.0	02/16/2018			02/27/2018	Ping Hua	1968577, 1968578
EPA 351.2 Rev. 2.0	02/16/2018	02/22/2018	Adrian Shelby	02/23/2018	Joseph Suarez	1968577, 1968578
EPA 353.2 Rev. 2.0	02/16/2018			02/23/2018	Lauren Bottorf	1968577, 1968578
EPA 365.1 Rev. 2.0	02/16/2018	02/22/2018	Sima Feizi	02/23/2018	Lipi Saha	1968577, 1968578
EPA 365.1 Rev. 2.0 dissolved	02/16/2018			02/16/2018 16:20	Megan Treadwell	1968579
	02/16/2018			02/16/2018 16:21	Megan Treadwell	1968580
EPA 8321B	02/16/2018	02/16/2018	Julie Michelle Frank	02/18/2018	Juyoung Kim	1968588, 1968589, 1968590
	02/16/2018	02/21/2018	Hoor Shaik	02/23/2018	Julie Michelle Frank	1968588, 1968589, 1968590
	02/16/2018	02/21/2018	Hoor Shaik	02/24/2018	Julie Michelle Frank	1968589, 1968590
	02/16/2018	02/21/2018	Hoor Shaik	02/27/2018	Julie Michelle Frank	1968588, 1968589, 1968590
SM 2120 B	02/16/2018			02/16/2018 15:58	Tanya Welborn	1968575, 1968576
SM 2320 B-97	02/16/2018			02/26/2018	Dale L. Simmons	1968575, 1968576
SM 2540 C-97	02/16/2018			02/19/2018	Ping Hua	1968575, 1968576
SM 2540 D-97	02/16/2018			02/19/2018	Yijie Li	1968575, 1968576
SM 4500 F-C-97	02/16/2018			02/26/2018	Dale L. Simmons	1968575, 1968576
SM 5310 B-00	02/16/2018			02/23/2018	Megan Treadwell	1968577, 1968578