

Chemical Analysis Report

SW-DIST-2018-02-13-02

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

Event Description: **Pinellas WBIDS By June**

Request ID: **RQ-2018-02-12-27**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

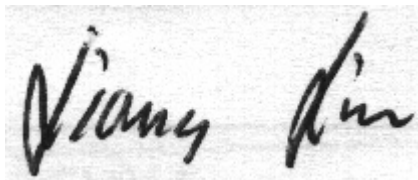
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 06-MAR-2018 16:25

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: Cedar Creek @ Pinehurst

Collection Date/Time: 02/12/2018 09:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966712	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P339891	
	EPA 300.0 Rev. 2.1	Chloride	150		mg Cl/L	P340013	
		Sulfate	35		mg SO4/L	P340016	
	SM 2120 B	Color (true)	50		PCU	P339871	
	SM 2320 B-97	Total Alkalinity	102		mg CaCO3/L	P340526	
	SM 2540 C-97	TDS	450	A	mg/L	P340333	
	SM 2540 D-97	TSS	2	UA	mg/L	P340227	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P340530	
1966713	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P340319	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P339898	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P340368	
	EPA 365.1 Rev. 2.0	Total-P	0.095		mg P/L	P339973	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P340426	
1966714	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P339881	

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: Cedar Creek @ Pinehurst

Collection Date/Time: 02/12/2018 09:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966733	EPA 8321B	2,4-D	0.0027	I	ug/L	P339874	MS
		Sucralose**	2.9		ug/L	P339742	
		Bentazon	0.34		ug/L	P339874	MS
		MCP	0.0020	U	ug/L	P339874	MS
		Triclopyr**	0.0040	U	ug/L	P339874	MS
		Imidacloprid	0.025		ug/L	P339874	
		Diuron	0.0068	I	ug/L	P339874	
		Primidone**	0.026		ug/L	P339874	
		Linuron	0.0040	U	ug/L	P339874	
		Acetaminophen**	0.0080	U	ug/L	P339874	
		Fenuron	0.0080	U	ug/L	P339874	
		Carbamazepine**	0.0017		ug/L	P339874	
		Fluridone**	0.0023		ug/L	P339874	

Sample Location: Alligator @ Old Coachman

Collection Date/Time: 02/12/2018 10:20

Field ID: G1SW0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966734	EPA 8321B	2,4-D	0.014		ug/L	P339874	MS
		Sucralose**	2.5		ug/L	P339742	
		Bentazon	0.018		ug/L	P339874	MS
		MCP	0.0020	U	ug/L	P339874	MS
		Triclopyr**	0.0040	U	ug/L	P339874	MS

Field ID: G1SW0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966734	EPA 8321B	Imidacloprid	0.022		ug/L	P339874	
		Diuron	0.0025	I	ug/L	P339874	
		Primidone**	0.019		ug/L	P339874	
		Linuron	0.0040	U	ug/L	P339874	
		Acetaminophen**	0.0080	U	ug/L	P339874	
		Fenuron	0.0080	U	ug/L	P339874	
		Carbamazepine**	0.0026		ug/L	P339874	
		Fluridone**	0.053		ug/L	P339874	

Sample Location: Alligator @ Glen Oak

Collection Date/Time: 02/12/2018 10:40

Field ID: G1SW0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966735	EPA 8321B	2,4-D	0.0041	I	ug/L	P339874	MS
		Sucralose**	1.5		ug/L	P339742	
		Bentazon	0.015		ug/L	P339874	MS
		MCP	0.0020	U	ug/L	P339874	MS
		Triclopyr**	0.0040	U	ug/L	P339874	MS
		Imidacloprid	0.019		ug/L	P339874	
		Diuron	0.0045	I	ug/L	P339874	
		Primidone**	0.0056	I	ug/L	P339874	
		Linuron	0.0040	U	ug/L	P339874	
		Acetaminophen**	0.0080	U	ug/L	P339874	
		Fenuron	0.0080	U	ug/L	P339874	
		Carbamazepine**	0.0031		ug/L	P339874	
		Fluridone**	0.051		ug/L	P339874	

Sample Location: Long Branch @ Michigan

Collection Date/Time: 02/12/2018 11:20

Field ID: G1SW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966736	EPA 8321B	2,4-D	0.0020	U	ug/L	P339874	MS
		Sucralose**	0.15		ug/L	P339742	
		Bentazon	0.010		ug/L	P339874	MS
		MCP	0.0021	I	ug/L	P339874	MS
		Triclopyr**	0.0040	U	ug/L	P339874	MS
		Imidacloprid	0.016		ug/L	P339874	
		Diuron	0.0041	I	ug/L	P339874	
		Primidone**	0.0040	U	ug/L	P339874	
		Linuron	0.0040	U	ug/L	P339874	
		Acetaminophen**	0.0080	U	ug/L	P339874	
		Fenuron	0.0080	U	ug/L	P339874	
		Carbamazepine**	4.0E-04	U	ug/L	P339874	
		Fluridone**	0.16		ug/L	P339874	

Sample Location: Long Branch @ Appt. walkway

Collection Date/Time: 02/12/2018 11:35

Field ID: G1SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1966737	EPA 8321B	2,4-D	0.0028	I	ug/L	P339874	MS
		Sucralose**	0.15		ug/L	P339742	
		Bentazon	0.011		ug/L	P339874	MS
		MCP	0.0021	I	ug/L	P339874	MS
		Triclopyr**	0.0040	U	ug/L	P339874	MS
		Imidacloprid	0.012		ug/L	P339874	
		Diuron	0.0039	I	ug/L	P339874	
		Primidone**	0.0040	U	ug/L	P339874	
		Linuron	0.0040	U	ug/L	P339874	
		Acetaminophen**	0.0080	U	ug/L	P339874	
		Fenuron	0.0080	U	ug/L	P339874	
		Carbamazepine**	4.0E-04	U	ug/L	P339874	
		Fluridone**	0.13		ug/L	P339874	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P339891

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P340013

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P340016

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340319

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P339898

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P340368

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339973

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339881

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

Reference Method: EPA 8321B
Batch ID: P339742

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P339874

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	4.0E-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: P339871

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340526

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

Reference Method: SM 2540 C-97
Batch ID: P340333

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P340227

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340530

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340426

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: P340013

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340016

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340319

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339898

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340368

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339973

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
Batch ID: P339973

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P339742

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

Reference Method: EPA 8321B
Batch ID: P339874

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	63.5		P	40 - 150
Acetaminophen	92.8		P	30 - 150
Bentazon	73.9		P	30 - 150
Carbamazepine	73.3		P	40 - 150
Diuron	76.0		P	40 - 150
Fenuron	103		P	40 - 150
Fluridone	72.9		P	40 - 150
Imidacloprid	87.8		P	40 - 160
Linuron	75.5		P	40 - 150
MCP	70.6		P	40 - 150
Primidone	88.3		P	40 - 150
Triclopyr	65.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P340526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P340426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967006	Chloride	102		P	90 - 110
1967007	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340016

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967006	Sulfate	103		P	90 - 110
1967007	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966766	Ammonia-N	98.1	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966713	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966703	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966713	Total-P	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966714	O-Phosphate-P	97.2	99.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P339742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966475	Sucralose	143	145	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P339874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966576	2,4-D	38.1	40.6	F/P	40 - 150
1966576	Acetaminophen	120	114	P/P	30 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P339874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966576	Bentazon	24.8	29.5	F/F	30 - 150
1966576	Carbamazepine	71.5	71.1	P/P	40 - 150
1966576	Diuron	58.3	62.4	P/P	40 - 150
1966576	Fenuron	88.5	83.6	P/P	40 - 150
1966576	Fluridone	60.2	60.1	P/P	40 - 150
1966576	Imidacloprid	135	131	P/P	40 - 160
1966576	Linuron	70.9	64.7	P/P	40 - 150
1966576	MCPP	32.2	40.5	F/P	40 - 150
1966576	Primidone	102	103	P/P	40 - 150
1966576	Triclopyr	34.8	38.5	F/F	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P340530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966697	Fluoride	97.2	96.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1966668	Organic Carbon	111		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966697	Turbidity	1.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967006	Chloride	1.64	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967006	Sulfate	2.34	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966766	Ammonia-N	0.0864	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966713	Kjeldahl Nitrogen	0.173	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966703	NO2NO3-N	0.406	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966713	Total-P	1.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966714	O-Phosphate-P	1.12	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P339742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966475	Sucralose	1.74	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P339874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966576	2,4-D	6.21	Spike	P	0 - 30
1966576	Acetaminophen	5.14	Spike	P	0 - 30
1966576	Bentazon	13.8	Spike	P	0 - 30
1966576	Carbamazepine	0.575	Spike	P	0 - 30
1966576	Diuron	5.78	Spike	P	0 - 30
1966576	Fenuron	5.73	Spike	P	0 - 30
1966576	Fluridone	0.141	Spike	P	0 - 30
1966576	Imidacloprid	2.68	Spike	P	0 - 30
1966576	Linuron	9.16	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P339874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966576	MCP	22.8	Spike	P	0 - 30
1966576	Primidone	1.10	Spike	P	0 - 30
1966576	Triclopyr	10.1	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P339871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966701	Color (true)	0.459	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P340526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966697	Total Alkalinity	0.378	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P340333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966712	TDS	0.667	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P340530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966697	Fluoride	0.992	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P340426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1966668	Organic Carbon	0.0770	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: 1966733
Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	63.4	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1966733
Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	117	P	30 - 160
EPA 8321B	Carbamazepine-d10	94.9	P	30 - 160
EPA 8321B	Diuron-d6	75.1	P	30 - 160
EPA 8321B	Primidone-d5	98.3	P	30 - 160
EPA 8321B	Sucralose-d6	111	P	40 - 160

Lab Sample ID: 1966734
Field Sample ID: G1SW0062

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	58.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	129	P	30 - 160
EPA 8321B	Carbamazepine-d10	98.2	P	30 - 160
EPA 8321B	Diuron-d6	77.8	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	108	P	40 - 160

Lab Sample ID: 1966735
Field Sample ID: G1SW0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	53.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	160	P	30 - 160
EPA 8321B	Carbamazepine-d10	102	P	30 - 160
EPA 8321B	Diuron-d6	86.2	P	30 - 160
EPA 8321B	Primidone-d5	133	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	40 - 160

Lab Sample ID: 1966736
Field Sample ID: G1SW0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	57.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	144	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.4	P	30 - 160
EPA 8321B	Diuron-d6	84.2	P	30 - 160
EPA 8321B	Primidone-d5	117	P	30 - 160
EPA 8321B	Sucralose-d6	146	P	40 - 160

Lab Sample ID: 1966737
Field Sample ID: G1SW0098

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	63.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	118	P	30 - 160
EPA 8321B	Carbamazepine-d10	77.7	P	30 - 160
EPA 8321B	Diuron-d6	72.4	P	30 - 160
EPA 8321B	Primidone-d5	97.9	P	30 - 160
EPA 8321B	Sucralose-d6	133	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82003

Included Lab Sample IDs: 1966712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	105	101	P/P	90 - 110
Sulfate	105	102	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A82033

Included Lab Sample IDs: 1966712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.0	99.6	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82036

Included Lab Sample IDs: 1966714

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82039

Included Lab Sample IDs: 1966712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82089

Included Lab Sample IDs: 1966713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82107

Included Lab Sample IDs: 1966713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82157

Included Lab Sample IDs: 1966733, 1966734, 1966735, 1966736, 1966737

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	110	P/P	60 - 150
Sucralose	110	96.2	P/P	60 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82180

Included Lab Sample IDs: 1966713

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82180

Included Lab Sample IDs: 1966713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	99.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82205

Included Lab Sample IDs: 1966733, 1966734, 1966735, 1966736, 1966737

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	90.2	85.0	P/P	50 - 150
Acetaminophen	116	113	P/P	60 - 150
Bentazon	94.8	111	P/P	50 - 150
Carbamazepine	95.7	101	P/P	60 - 150
Diuron	122	118	P/P	60 - 150
Fenuron	116	116	P/P	60 - 150
Fluridone	98.9	117	P/P	60 - 160
Imidacloprid	104	96.0	P/P	60 - 150
Linuron	108	117	P/P	60 - 150
MCPP	99.0	96.0	P/P	50 - 150
Primidone	126	112	P/P	60 - 150
Triclopyr	97.3	107	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82217

Included Lab Sample IDs: 1966713

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82231

Included Lab Sample IDs: 1966713

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

Reference Method: SM 2320 B-97

Run ID: A82266

Included Lab Sample IDs: 1966712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.0	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82266

Included Lab Sample IDs: 1966712

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A82285
 Included Lab Sample IDs: 1966733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	92.3	100	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				1.84	
EPA 300.0 Rev. 2.1	Chloride	101	102 103		1.64	
	Sulfate	103	103 104		2.34	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.1 98.2			0.0864
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	102 102			0.173
EPA 353.2 Rev. 2.0	NO2NO3-N	103	105 105			0.406
EPA 365.1 Rev. 2.0	Total-P	101	100 102			1.44
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	97.2 99.0			1.12
EPA 8321B	2,4-D	63.5	38.1 40.6			6.21
	Acetaminophen	92.8	120 114			5.14
	Bentazon	73.9	24.8 29.5			13.8
	Carbamazepine	73.3	71.5 71.1			0.575
	Diuron	76.0	58.3 62.4			5.78
	Fenuron	103	88.5 83.6			5.73
	Fluridone	72.9	60.2 60.1			0.141
	Imidacloprid	87.8	135 131			2.68
	Linuron	75.5	70.9 64.7			9.16
	MCP	70.6	32.2 40.5			22.8
	Primidone	88.3	102 103			1.10
	Sucralose	111	143 145			1.74
	Triclopyr	65.5	34.8 38.5			10.1
SM 2120 B	Color (true)				0.459	
SM 2320 B-97	Total Alkalinity	99.1			0.378	
SM 2540 C-97	TDS				0.667	
SM 4500 F-C-97	Fluoride	95.9	97.2 96.0			0.992
SM 5310 B-00	Organic Carbon	96.2	111			0.0770

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1966712
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1966712
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1966712
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1966713

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1966713
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1966713
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1966713
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1966714
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1966733, 1966734, 1966735, 1966736, 1966737
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1966733, 1966734, 1966735, 1966736, 1966737
SM 2120 B / E31780	True Color measured at 450 nm	1966712
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1966712
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1966712
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1966712
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1966712
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1966713

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	02/13/2018			02/13/2018 17:01	Sima Feizi	1966712
EPA 300.0 Rev. 2.1	02/13/2018			02/14/2018	Julia Storbeck	1966712
EPA 350.1 Rev. 2.0	02/13/2018			02/20/2018	Ping Hua	1966713
EPA 351.2 Rev. 2.0	02/13/2018	02/14/2018	Adrian Shelby	02/16/2018	Joseph Suarez	1966713
EPA 353.2 Rev. 2.0	02/13/2018			02/21/2018	Lauren Bottorf	1966713
EPA 365.1 Rev. 2.0	02/13/2018	02/14/2018	Sima Feizi	02/15/2018	Lipi Saha	1966713
EPA 365.1 Rev. 2.0 dissolved	02/13/2018			02/13/2018 17:07	Megan Treadwell	1966714
EPA 8321B	02/13/2018	02/14/2018	Hoor Shaik	02/15/2018	Julie Michelle Frank	1966733, 1966734, 1966735, 1966736, 1966737
	02/13/2018	02/14/2018	Hoor Shaik	02/16/2018	Julie Michelle Frank	1966733, 1966734, 1966735, 1966736, 1966737
	02/13/2018	02/14/2018	Hoor Shaik	02/20/2018	Julie Michelle Frank	1966733
	02/13/2018	02/15/2018	Julie Michelle Frank	02/16/2018	Juyoung Kim	1966733, 1966734, 1966735, 1966736, 1966737
SM 2120 B	02/13/2018			02/13/2018 17:15	Tanya Welborn	1966712
SM 2320 B-97	02/13/2018			02/23/2018	Dale L. Simmons	1966712
SM 2540 C-97	02/13/2018			02/14/2018	DeAsia Armster	1966712
SM 2540 D-97	02/13/2018			02/14/2018	DeAsia Armster	1966712
SM 4500 F-C-97	02/13/2018			02/23/2018	Dale L. Simmons	1966712
SM 5310 B-00	02/13/2018			02/21/2018	Megan Treadwell	1966713