

Chemical Analysis Report

SW-DIST-2018-02-14-01

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

Event Description: **Spartman, Flint, Bellows, Baker**

Request ID: **RQ-2018-02-05-57**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

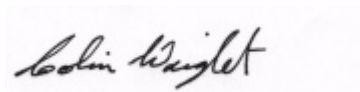
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact

Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 06-MAR-2018 16:22



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: Flint Creek @ US 301

Collection Date/Time: 02/13/2018 09:50

Field ID: G2SW0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967580	EPA 8321B	2,4-D	0.015		ug/L	P339934	
		Sucralose**	0.40		ug/L	P340020	
		Bentazon	0.0052		ug/L	P339934	
		MCP	0.0020	U	ug/L	P339934	
		Triclopyr**	0.0040	U	ug/L	P339934	
		Imidacloprid	0.028		ug/L	P339934	MS
		Diuron	0.020		ug/L	P339934	
		Primidone**	0.0040	U	ug/L	P339934	
		Linuron	0.0040	U	ug/L	P339934	
		Acetaminophen**	0.0080	U	ug/L	P339934	
		Fenuron	0.015	I	ug/L	P339934	
		Carbamazepine**	4.0E-04	U	ug/L	P339934	
		Fluridone**	0.0023	I	ug/L	P339934	

Sample Location: Flint Creek @ Knights Griffin Rd

Collection Date/Time: 02/13/2018 10:12

Field ID: G2SW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967581	EPA 8321B	2,4-D	0.013		ug/L	P339934	
		Sucralose**	0.52		ug/L	P340020	
		Bentazon	0.0057		ug/L	P339934	
		MCP	0.0020	U	ug/L	P339934	
		Triclopyr**	0.0040	U	ug/L	P339934	
		Imidacloprid	0.025		ug/L	P339934	MS
		Diuron	0.024		ug/L	P339934	
		Primidone**	0.0040	U	ug/L	P339934	
		Linuron	0.0040	U	ug/L	P339934	
		Acetaminophen**	0.0080	U	ug/L	P339934	
		Fenuron	0.014	I	ug/L	P339934	
		Carbamazepine**	4.0E-04	U	ug/L	P339934	
		Fluridone**	0.0031	I	ug/L	P339934	

Sample Location: Spartman Branch at Harvey Tew Rd

Collection Date/Time: 02/13/2018 11:00

Field ID: G2SW0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967582	EPA 8321B	2,4-D	0.0020	U	ug/L	P339934	
		Sucralose**	0.30		ug/L	P340020	
		Bentazon	0.026		ug/L	P339934	
		MCP	0.0020	U	ug/L	P339934	
		Triclopyr**	0.0040	U	ug/L	P339934	
		Imidacloprid	0.023		ug/L	P339934	MS
		Diuron	0.0020	U	ug/L	P339934	
		Primidone**	0.0040	U	ug/L	P339934	

Field ID: G2SW0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967582	EPA 8321B	Linuron	0.0040	U	ug/L	P339934	
		Acetaminophen**	0.0080	U	ug/L	P339934	
		Fenuron	0.0080	U	ug/L	P339934	
		Carbamazepine**	4.0E-04	U	ug/L	P339934	
		Fluridone**	0.0039		ug/L	P339934	

Sample Location: Spartman Branch @ US 92

Collection Date/Time: 02/13/2018 11:15

Field ID: G2SW0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967583	EPA 8321B	2,4-D	0.016		ug/L	P339934	
		Sucralose**	0.35		ug/L	P340020	
		Bentazon	0.027		ug/L	P339934	
		MCP	0.0020	U	ug/L	P339934	
		Triclopyr**	0.0040	U	ug/L	P339934	
		Imidacloprid	0.015		ug/L	P339934	MS
		Diuron	0.0020	U	ug/L	P339934	
		Primidone**	0.0040	U	ug/L	P339934	
		Linuron	0.0040	U	ug/L	P339934	
		Acetaminophen**	0.0080	U	ug/L	P339934	
		Fenuron	0.0080	U	ug/L	P339934	
		Carbamazepine**	4.0E-04	U	ug/L	P339934	
		Fluridone**	0.0038		ug/L	P339934	

Sample Location: Bellows Lake Outlet

Collection Date/Time: 02/13/2018 09:10

Field ID: G1SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967547	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P339987	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P340320	
		Sulfate	6.4		mg SO4/L	P340322	
	SM 2120 B	Color (true)	26		PCU	P339982	
	SM 2320 B-97	Total Alkalinity	58		mg CaCO3/L	P340527	
	SM 2540 C-97	TDS	108		mg/L	P340573	
	SM 2540 D-97	TSS	23		mg/L	P340233	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P340769	
1967550	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P340621	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.2		mg N/L	P340260	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P340373	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P340187	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P340426	
1967553	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339993	

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: Baker Creek @ Thonotosassa Rd

Collection Date/Time: 02/13/2018 10:35

Field ID: G2SW0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967584	EPA 8321B	2,4-D	0.0053	I	ug/L	P339934	
		Sucralose**	0.85		ug/L	P340020	
		Bentazon	0.0086		ug/L	P339934	
		MCP	0.0020	U	ug/L	P339934	
		Triclopyr**	0.0040	U	ug/L	P339934	
		Imidacloprid	0.026		ug/L	P339934	MS
		Diuron	0.014		ug/L	P339934	
		Primidone**	0.0040	U	ug/L	P339934	
		Linuron	0.0040	U	ug/L	P339934	
		Acetaminophen**	0.0080	UJ	ug/L	P339934	SUR
		Fenuron	0.016	I	ug/L	P339934	
		Carbamazepine**	9.1E-04	I	ug/L	P339934	
		Fluridone**	0.0050		ug/L	P339934	

Ref. Method and Comment:
EPA 8321B: Refer to the narrative for an explanation of QC Codes.

Sample Location: Bellows - Duplicate Sample

Collection Date/Time: 02/13/2018 09:15

Field ID: G1SW0060 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967548	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P339984	
	EPA 300.0 Rev. 2.1	Chloride	7.1		mg Cl/L	P340320	
		Sulfate	6.5		mg SO4/L	P340322	
	SM 2120 B	Color (true)	28		PCU	P339982	
	SM 2320 B-97	Total Alkalinity	59		mg CaCO3/L	P340527	
	SM 2540 C-97	TDS	104		mg/L	P340574	
	SM 2540 D-97	TSS	25		mg/L	P340233	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P340769	
1967551	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P340621	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.2		mg N/L	P340260	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P340373	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P340187	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P340426	
1967554	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339993	

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: BLANK

Collection Date/Time: 02/13/2018 13:10

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967549	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P339984	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P340320	
		Sulfate	0.20	U	mg SO4/L	P340322	
	SM 2120 B	Color (true)	2.5	U	PCU	P340033	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P340527	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1967549	SM 2540 C-97	TDS	15	U	mg/L	P340574	
	SM 2540 D-97	TSS	2	U	mg/L	P340234	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P340769	
1967552	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P340622	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P340260	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P340373	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P340187	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P340426	
1967555	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P339993	

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339984

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339987

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340320

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340322

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340621

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340622

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340260

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340373

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340187

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339993

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

Reference Method: EPA 8321B
Batch ID: P339934

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: EPA 8321B
Batch ID: P340020

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P339982

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P340033

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340527

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

Reference Method: SM 2540 C-97
Batch ID: P340573

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P340574

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P340233

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P340234

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340769

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: P340320

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340621

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340622

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340260

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: P340373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340187

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P339934

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	67.9		P	40 - 150
Acetaminophen	105		P	30 - 150
Bentazon	90.9		P	30 - 150
Carbamazepine	77.0		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P339934

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	83.4		P	40 - 150
Fenuron	107		P	40 - 150
Fluridone	86.1		P	40 - 150
Imidacloprid	95.3		P	40 - 160
Linuron	84.5		P	40 - 150
MCPP	76.4		P	40 - 150
Primidone	128		P	40 - 150
Triclopyr	72.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	93.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P340527

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.2		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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967645	Chloride	93.0		P	90 - 110
1967805	Chloride	94.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967645	Sulfate	92.7		P	90 - 110
1967805	Sulfate	93.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967495	Ammonia-N	94.7	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967648	Ammonia-N	96.8	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340260

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967495	Kjeldahl Nitrogen	105	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967495	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967495	Total-P	98.2	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967123	O-Phosphate-P	96.2	96.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P339934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967518	2,4-D	63.5	52.3	P/P	40 - 150
1967518	Acetaminophen	140	121	P/P	30 - 150
1967518	Bentazon	58.7	45.3	P/P	30 - 150
1967518	Carbamazepine	77.6	71.5	P/P	40 - 150
1967518	Diuron	71.9	65.5	P/P	40 - 150
1967518	Fenuron	92.4	86.6	P/P	40 - 150
1967518	Fluridone	59.7	64.7	P/P	40 - 150
1967518	Imidacloprid	221	200	F/F	40 - 160
1967518	Linuron	89.9	82.3	P/P	40 - 150
1967518	MCP	64.9	54.8	P/P	40 - 150
1967518	Primidone	122	93.6	P/P	40 - 150
1967518	Triclopyr	59.2	61.4	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P340020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967545	Sucralose	124	125	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P340769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1967700	Fluoride	92.7	92.7	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: P339984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967227	Turbidity	0.182	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967018	Turbidity	1.44	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967645	Chloride	3.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967645	Sulfate	0.743	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967495	Ammonia-N	1.89	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967648	Ammonia-N	1.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967495	Kjeldahl Nitrogen	2.55	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967495	NO2NO3-N	0.669	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967495	Total-P	2.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967123	O-Phosphate-P	0.622	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P339934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967518	2,4-D	19.3	Spike	P	0 - 30
1967518	Acetaminophen	14.5	Spike	P	0 - 30
1967518	Bentazon	24.7	Spike	P	0 - 30
1967518	Carbamazepine	7.81	Spike	P	0 - 30
1967518	Diuron	9.30	Spike	P	0 - 30
1967518	Fenuron	6.47	Spike	P	0 - 30
1967518	Fluridone	8.07	Spike	P	0 - 30
1967518	Imidacloprid	10.1	Spike	P	0 - 30
1967518	Linuron	8.84	Spike	P	0 - 30
1967518	MCP	16.9	Spike	P	0 - 30
1967518	Primidone	16.9	Spike	P	0 - 30
1967518	Triclopyr	3.57	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P340020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967545	Sucralose	0.858	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P339982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967006	Color (true)	1.97	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P340033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967782	Color (true)	8.47	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P340527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967700	Total Alkalinity	0.112	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P340573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967499	TDS	1.45	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P340574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967700	TDS	9.43	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P340769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1967700	Fluoride	0.0	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

Quality Assurance Report Precision

* 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: 1967580
Field Sample ID: G2SW0004

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	58.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	131	P	30 - 160
EPA 8321B	Carbamazepine-d10	64.1	P	30 - 160
EPA 8321B	Diuron-d6	76.8	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	136	P	40 - 160

Lab Sample ID: 1967581
Field Sample ID: G2SW0066

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	53.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	141	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.7	P	30 - 160
EPA 8321B	Diuron-d6	83.2	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	126	P	40 - 160

Lab Sample ID: 1967582
Field Sample ID: G2SW0067

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	72.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	125	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.1	P	30 - 160
EPA 8321B	Diuron-d6	87.4	P	30 - 160
EPA 8321B	Primidone-d5	98.4	P	30 - 160
EPA 8321B	Sucralose-d6	141	P	40 - 160

Lab Sample ID: 1967583
Field Sample ID: G2SW0013

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	74.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	139	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.9	P	30 - 160
EPA 8321B	Diuron-d6	91.5	P	30 - 160
EPA 8321B	Primidone-d5	115	P	30 - 160
EPA 8321B	Sucralose-d6	132	P	40 - 160

Lab Sample ID: 1967584
Field Sample ID: G2SW0012

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	70.1	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1967584
Field Sample ID: G2SW0012

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	182	F	30 - 160
EPA 8321B	Carbamazepine-d10	97.5	P	30 - 160
EPA 8321B	Diuron-d6	114	P	30 - 160
EPA 8321B	Primidone-d5	131	P	30 - 160
EPA 8321B	Sucralose-d6	146	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A82074
Included Lab Sample IDs: 1967547, 1967548

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	106	104	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82076
Included Lab Sample IDs: 1967547, 1967548, 1967549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82081
Included Lab Sample IDs: 1967553, 1967554, 1967555

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	98.4	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A82095
Included Lab Sample IDs: 1967549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82162
Included Lab Sample IDs: 1967550, 1967551

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82163
Included Lab Sample IDs: 1967552

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82163

Included Lab Sample IDs: 1967552

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

Reference Method: EPA 8321B

Run ID: A82167

Included Lab Sample IDs: 1967580, 1967581, 1967582, 1967583, 1967584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	87.9	91.6	P/P	60 - 150
Sucralose	91.6	94.8	P/P	60 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82190

Included Lab Sample IDs: 1967547, 1967548, 1967549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	98.4	P/P	90 - 110
Sulfate	99.0	98.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82205

Included Lab Sample IDs: 1967580, 1967581, 1967582, 1967583, 1967584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	91.0	101	P/P	50 - 150
Acetaminophen	119	118	P/P	60 - 150
Bentazon	124	129	P/P	50 - 150
Carbamazepine	98.7	104	P/P	60 - 150
Diuron	140	137	P/P	60 - 150
Fenuron	117	120	P/P	60 - 150
Fluridone	113	115	P/P	60 - 160
Imidacloprid	111	119	P/P	60 - 150
Linuron	127	122	P/P	60 - 150
MCPP	110	110	P/P	50 - 150
Primidone	131	131	P/P	60 - 150
Triclopyr	111	111	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82217

Included Lab Sample IDs: 1967550, 1967551, 1967552

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82224

Included Lab Sample IDs: 1967550, 1967551, 1967552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A82231

Included Lab Sample IDs: 1967550, 1967551, 1967552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	98.6	P/P	90 - 110
Organic Carbon	103	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82266

Included Lab Sample IDs: 1967547, 1967548, 1967549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	97.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82297

Included Lab Sample IDs: 1967550, 1967551, 1967552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.8	P/P	90 - 110
Ammonia-N	99.6	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82351

Included Lab Sample IDs: 1967547, 1967548, 1967549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	97.6	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		Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.182	
	Turbidity				1.44	
EPA 300.0 Rev. 2.1	Chloride	95.3	93.0	94.6	3.08	
	Sulfate	93.3	92.7	93.2	0.743	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	94.7	97.1		1.89
	Ammonia-N	96.9	96.8	98.1		1.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	105	100		2.55
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	103	104		0.669
EPA 365.1 Rev. 2.0	Total-P	100	98.2	101		2.22
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	96.2	96.8		0.622
EPA 8321B	2,4-D	67.9	63.5	52.3		19.3
	Acetaminophen	105	140	121		14.5
	Bentazon	90.9	58.7	45.3		24.7
	Carbamazepine	77.0	77.6	71.5		7.81
	Diuron	83.4	71.9	65.5		9.30
	Fenuron	107	92.4	86.6		6.47

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Fluridone	86.1	59.7	64.7		8.07
	Imidacloprid	95.3	221	200		10.1
	Linuron	84.5	89.9	82.3		8.84
	MCP	76.4	64.9	54.8		16.9
	Primidone	128	122	93.6		16.9
	Sucralose	93.5	124	125		0.858
	Triclopyr	72.4	59.2	61.4		3.57
SM 2120 B	Color (true)				1.97	
	Color (true)				8.47	
SM 2320 B-97	Total Alkalinity	100			0.112	
SM 2540 C-97	TDS				1.45	
	TDS				9.43	
SM 4500 F-C-97	Fluoride	94.2	92.7	92.7		0.0
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	1967547, 1967548, 1967549
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1967547, 1967548, 1967549
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1967547, 1967548, 1967549
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1967550, 1967551, 1967552
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1967550, 1967551, 1967552
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1967550, 1967551, 1967552
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1967550, 1967551, 1967552
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1967553, 1967554, 1967555
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1967580, 1967581, 1967582, 1967583, 1967584
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1967580, 1967581, 1967582, 1967583, 1967584
SM 2120 B / E31780	True Color measured at 450 nm	1967547, 1967548, 1967549
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1967547, 1967548, 1967549
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1967547, 1967548, 1967549
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1967547, 1967548, 1967549
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1967547, 1967548, 1967549
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1967550, 1967551, 1967552

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	02/14/2018			02/14/2018 17:19	Sima Feizi	1967547, 1967548, 1967549
EPA 300.0 Rev. 2.1	02/14/2018			02/20/2018	Julia Storbeck	1967547, 1967548, 1967549
EPA 350.1 Rev. 2.0	02/14/2018			02/26/2018	Julia Storbeck	1967550, 1967551, 1967552
EPA 351.2 Rev. 2.0	02/14/2018	02/20/2018	Adrian Shelby	02/22/2018	Joseph Suarez	1967550, 1967551, 1967552
EPA 353.2 Rev. 2.0	02/14/2018			02/21/2018	Lauren Bottorf	1967550, 1967551, 1967552
EPA 365.1 Rev. 2.0	02/14/2018	02/19/2018	Sima Feizi	02/20/2018	Beverly Y. Sanders	1967550, 1967551
	02/14/2018	02/19/2018	Sima Feizi	02/20/2018	Lipi Saha	1967552
EPA 365.1 Rev. 2.0 dissolved	02/14/2018			02/14/2018 16:28	Megan Treadwell	1967553
	02/14/2018			02/14/2018 16:34	Megan Treadwell	1967554, 1967555
EPA 8321B	02/14/2018	02/15/2018	Hoor Shaik	02/17/2018	Julie Michelle Frank	1967580, 1967581, 1967582, 1967583, 1967584
	02/14/2018	02/15/2018	Hoor Shaik	02/18/2018	Julie Michelle Frank	1967580, 1967581, 1967582, 1967583, 1967584
	02/14/2018	02/15/2018	Juyoung Kim	02/17/2018	Juyoung Kim	1967580, 1967581, 1967582, 1967583, 1967584
SM 2120 B	02/14/2018			02/14/2018 17:40	Tanya Welborn	1967547
	02/14/2018			02/14/2018 17:41	Tanya Welborn	1967548
	02/14/2018			02/15/2018 11:48	Tanya Welborn	1967549
SM 2320 B-97	02/14/2018			02/24/2018	Dale L. Simmons	1967547, 1967548, 1967549
SM 2540 C-97	02/14/2018			02/16/2018	DeAsia Armster	1967547, 1967548, 1967549
SM 2540 D-97	02/14/2018			02/16/2018	DeAsia Armster	1967547, 1967548, 1967549
SM 4500 F-C-97	02/14/2018			02/28/2018	Dale L. Simmons	1967547
	02/14/2018			03/01/2018	Dale L. Simmons	1967548, 1967549
SM 5310 B-00	02/14/2018			02/21/2018	Megan Treadwell	1967550, 1967551, 1967552