

Chemical Analysis Report

SW-DIST-2018-05-03-01

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

Event Description: **Snug, PP#1, BasinV, Mckay tidal**

Request ID: **RQ-2018-04-30-06**

Customer: **SW-DIST**

Project ID: **SMP**

Send Reports to:

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Date Certified: 23-MAY-2018 15:45



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: SNUG HARBOR TP428

Collection Date/Time: 05/02/2018 09:50

Field ID: G1SW0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989894	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P344610	
	SM 2320 B-97	Total Alkalinity	129		mg CaCO3/L	P345178	
	SM 2540 D-97	TSS	28	J	mg/L	P344820	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P344920	
1989896	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P345111	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P344857	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P344802	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P344806	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P344913	
1989898	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.079		mg P/L	P344635	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The sample was reanalyzed on 5/14/2018. The result was 5 UQ mg/L.

Sample Location: PINELLAS PT. BASIN V

Collection Date/Time: 05/02/2018 10:25

Field ID: G1SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989895	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P344610	
	SM 2320 B-97	Total Alkalinity	187		mg CaCO3/L	P345083	
	SM 2540 D-97	TSS	2	U	mg/L	P344818	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P345086	
1989897	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P345110	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P344767	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344695	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P344807	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P345108	
1989899	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P344634	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PINELLAS PARK DITCH NO.1

Collection Date/Time: 05/02/2018 12:10

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989891	EPA 180.1 Rev. 2.0	Turbidity	3.1	A	NTU	P344610	
	SM 2320 B-97	Total Alkalinity	171		mg CaCO3/L	P345178	
	SM 2540 D-97	TSS	3	U	mg/L	P344820	
	SM 4500 F-C-97	Fluoride	0.54		mg F/L	P344920	
1989892	EPA 350.1 Rev. 2.0	Ammonia-N	0.077		mg N/L	P345111	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P344857	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P344802	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P344806	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P344913	

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1989893	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P344635	
1989918	EPA 8321B	2,4-D	0.046		ug/L	P344559	
		Bentazon	0.046		ug/L	P344559	
		MCP	0.0043	I	ug/L	P344559	
		Triclopyr**	0.0040	U	ug/L	P344559	
		Imidacloprid	0.019		ug/L	P344559	
		Diuron	0.11		ug/L	P344559	
		Pyraclostrobin**	0.0020	U	ug/L	P344559	
		Primidone**	0.035		ug/L	P344559	
		Linuron	0.0040	U	ug/L	P344559	
		Acetaminophen**	0.0080	U	ug/L	P344559	
		Fenuron	0.016	U	ug/L	P344559	
		Imazapyr**	0.089		ug/L	P344559	
		Carbamazepine**	0.0063		ug/L	P344559	
		Fluridone**	0.080		ug/L	P344559	
		Hydrocodone**	8.0E-04	U	ug/L	P344559	
		Sucralose**	4.8		ug/L	P344561	

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: P344610

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345110

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345111

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344767

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344857

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344857

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344695

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344802

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344806

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344807

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344634

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344635

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

Reference Method: EPA 8321B
Batch ID: P344559

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	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P344559

Component	Result	Code	Units
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P344561

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P345083

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

Reference Method: SM 2320 B-97
Batch ID: P345178

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

Reference Method: SM 2540 D-97
Batch ID: P344818

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344820

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344920

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P345086

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344913

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P344913

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

Reference Method: SM 5310 B-00
Batch ID: P345108

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345110

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345111

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344767

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344857

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344802

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344806

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: P344806

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344807

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344634

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344635

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

Reference Method: EPA 8321B
Batch ID: P344559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	81.1		P	40 - 150
Acetaminophen	91.8		P	30 - 150
Bentazon	88.9		P	30 - 150
Carbamazepine	67.1		P	40 - 150
Diuron	71.2		P	40 - 150
Fenuron	99.9		P	40 - 150
Fluridone	102		P	40 - 150
Hydrocodone	98.2		P	40 - 150
Imazapyr	86.2		P	40 - 150
Imidacloprid	103		P	40 - 160
Linuron	84.1		P	40 - 150
MCPP	85.0		P	40 - 150
Primidone	83.3		P	40 - 150
Pyraclostrobin	71.1		P	40 - 150
Triclopyr	81.9		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	96.6		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P345083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P345178

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

Reference Method: SM 4500 F-C-97
Batch ID: P344920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.4		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P345086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P345108

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989832	Ammonia-N	99.3	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989800	Ammonia-N	99.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990053	Kjeldahl Nitrogen	95.3	96.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344857

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989892	Kjeldahl Nitrogen	104	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989829	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989660	NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989896	Total-P	93.0	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989830	O-Phosphate-P	98.6	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989802	O-Phosphate-P	98.0	98.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P344559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989874	2,4-D	116	108	P/P	40 - 150
1989874	Acetaminophen	75.4	75.4	P/P	30 - 150
1989874	Bentazon	58.2	53.7	P/P	30 - 150
1989874	Carbamazepine	49.8	48.5	P/P	40 - 150
1989874	Diuron	52.3	53.8	P/P	40 - 150
1989874	Fenuron	51.7	55.9	P/P	40 - 150
1989874	Fluridone	80.2	87.3	P/P	40 - 150
1989874	Hydrocodone	83.4	85.4	P/P	40 - 150
1989874	Imazapyr	77.4	78.7	P/P	40 - 150
1989874	Imidacloprid	136	137	P/P	40 - 160
1989874	Linuron	81.5	84.7	P/P	40 - 150
1989874	MCPP	113	106	P/P	40 - 150
1989874	Primidone	72.9	76.1	P/P	40 - 150
1989874	Pyraclostrobin	73.8	73.8	P/P	40 - 150
1989874	Triclopyr	103	95.1	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P344561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989731	Sucralose	114	99.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P344920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989796	Fluoride	92.8	93.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P345086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1990181	Fluoride	96.6	97.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989790	Organic Carbon	90.2	91.8	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P345108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989766	Organic Carbon	100	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989891	Turbidity	1.96	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989832	Ammonia-N	0.805	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989800	Ammonia-N	1.70	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990053	Kjeldahl Nitrogen	1.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989892	Kjeldahl Nitrogen	4.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989829	NO2NO3-N	1.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989660	NO2NO3-N	0.948	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989896	Total-P	1.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989686	Total-P	0.511	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989830	O-Phosphate-P	0.304	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989802	O-Phosphate-P	0.531	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P344559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989874	2,4-D	5.80	Spike	P	0 - 30
1989874	Acetaminophen	0.0207	Spike	P	0 - 30
1989874	Bentazon	6.68	Spike	P	0 - 30
1989874	Carbamazepine	2.64	Spike	P	0 - 30
1989874	Diuron	1.87	Spike	P	0 - 30
1989874	Fenuron	6.10	Spike	P	0 - 30
1989874	Fluridone	7.88	Spike	P	0 - 30
1989874	Hydrocodone	2.33	Spike	P	0 - 30
1989874	Imazapyr	0.936	Spike	P	0 - 30
1989874	Imidacloprid	0.949	Spike	P	0 - 30
1989874	Linuron	3.88	Spike	P	0 - 30
1989874	MCPP	6.70	Spike	P	0 - 30
1989874	Primidone	4.31	Spike	P	0 - 30
1989874	Pyraclostrobin	0.0324	Spike	P	0 - 30
1989874	Triclopyr	7.71	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P344561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989731	Sucralose	12.9	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P345083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990181	Total Alkalinity	0.836	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P345178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989796	Total Alkalinity	0.243	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P344920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989796	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P345086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1990181	Fluoride	0.953	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P344913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989790	Organic Carbon	1.41	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P345108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989766	Organic Carbon	0.138	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: 1989918
Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	122	P	30 - 160
EPA 8321B	Acetaminophen-d4	82.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	62.6	P	30 - 160
EPA 8321B	Diuron-d6	53.3	P	30 - 160
EPA 8321B	Primidone-d5	80.8	P	30 - 160
EPA 8321B	Sucralose-d6	87.5	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83641
Included Lab Sample IDs: 1989891, 1989894, 1989895

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83654
Included Lab Sample IDs: 1989893, 1989898, 1989899

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.0	P/P	90 - 110
O-Phosphate-P	99.3	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83674
Included Lab Sample IDs: 1989897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83710

Included Lab Sample IDs: 1989892, 1989896

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83745

Included Lab Sample IDs: 1989892, 1989896

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83750

Included Lab Sample IDs: 1989891, 1989894

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	99.0	P/P	90 - 110
Fluoride	98.1	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83751

Included Lab Sample IDs: 1989897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.9	94.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83769

Included Lab Sample IDs: 1989918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.1	98.9	P/P	50 - 150
Bentazon	111	108	P/P	50 - 160
MCP	107	109	P/P	50 - 150
Triclopyr	98.2	102	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83770

Included Lab Sample IDs: 1989892, 1989896

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83782

Included Lab Sample IDs: 1989892, 1989896, 1989897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	103	P/P	90 - 110
Total-P	102	102	P/P	90 - 110
Total-P	103	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
 Run ID: A83814
 Included Lab Sample IDs: 1989895

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Run ID: A83814
 Included Lab Sample IDs: 1989895

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00
 Run ID: A83819
 Included Lab Sample IDs: 1989897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A83820
 Included Lab Sample IDs: 1989892, 1989896, 1989897

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	100	P/P	90 - 110
Ammonia-N	102	101	P/P	90 - 110

Reference Method: SM 2320 B-97
 Run ID: A83837
 Included Lab Sample IDs: 1989891, 1989894

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	102	P/P	90 - 110

Reference Method: EPA 8321B
 Run ID: A83883
 Included Lab Sample IDs: 1989918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	134	141	P/P	60 - 150
Carbamazepine	132	123	P/P	60 - 150
Diuron	133	128	P/P	60 - 150
Fenuron	119	109	P/P	60 - 150
Fluridone	138	122	P/P	60 - 160
Hydrocodone	130	124	P/P	60 - 150
Imazapyr	104	105	P/P	50 - 150
Imidacloprid	110	97.4	P/P	60 - 150
Linuron	116	107	P/P	60 - 150
Primidone	99.4	93.6	P/P	60 - 150
Pyraclostrobin	108	103	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83902
Included Lab Sample IDs: 1989918

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	157	110	P/P	60 - 160

* 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				1.96	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.3 100			0.805
	Ammonia-N	99.7	99.2 101			1.70
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	95.3 96.7			1.07
	Kjeldahl Nitrogen	101	104 97.2			4.94
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100 102			1.49
	NO2NO3-N	104	105 106			0.948
EPA 365.1 Rev. 2.0	Total-P	107	93.0 94.8			1.66
	Total-P	104				0.511
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.6 98.9			0.304
	O-Phosphate-P	99.6	98.0 98.9			0.531
EPA 8321B	2,4-D	81.1	116 108			5.80
	Acetaminophen	91.8	75.4 75.4			0.0207
	Bentazon	88.9	58.2 53.7			6.68
	Carbamazepine	67.1	49.8 48.5			2.64
	Diuron	71.2	52.3 53.8			1.87
	Fenuron	99.9	51.7 55.9			6.10
	Fluridone	102	80.2 87.3			7.88
	Hydrocodone	98.2	83.4 85.4			2.33
	Imazapyr	86.2	77.4 78.7			0.936
	Imidacloprid	103	136 137			0.949
	Linuron	84.1	81.5 84.7			3.88
	MCP	85.0	113 106			6.70
	Primidone	83.3	72.9 76.1			4.31
	Pyraclostrobin	71.1	73.8 73.8			0.0324
	Sucralose	96.6	114 99.2			12.9
	Triclopyr	81.9	103 95.1			7.71
SM 2320 B-97	Total Alkalinity	101			0.836	
	Total Alkalinity	102			0.243	
SM 4500 F-C-97	Fluoride	94.4	92.8 93.5			0.480
	Fluoride	96.2	96.6 97.7			0.953
SM 5310 B-00	Organic Carbon	97.7	90.2 91.8			1.41
	Organic Carbon	101	100 101			0.138

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1989891, 1989894, 1989895
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1989892, 1989896, 1989897
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1989892, 1989896, 1989897
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1989892, 1989896, 1989897
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1989892, 1989896, 1989897
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1989893, 1989898, 1989899
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1989918
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1989891, 1989894, 1989895
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1989891, 1989894, 1989895
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1989891, 1989894, 1989895
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1989892, 1989896, 1989897

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/03/2018			05/03/2018 15:50	William L. Brown IV	1989891, 1989894, 1989895
EPA 350.1 Rev. 2.0	05/03/2018			05/10/2018 11:16	Ping Hua	1989897
	05/03/2018			05/10/2018 11:51	Ping Hua	1989892
	05/03/2018			05/10/2018 11:52	Ping Hua	1989896
EPA 351.2 Rev. 2.0	05/03/2018	05/07/2018 11:30	Adrian Shelby	05/08/2018 15:18	Joseph Suarez	1989897
	05/03/2018	05/08/2018 11:00	Adrian Shelby	05/09/2018 13:57	Joseph Suarez	1989892
	05/03/2018	05/08/2018 11:00	Adrian Shelby	05/09/2018 14:02	Joseph Suarez	1989896
EPA 353.2 Rev. 2.0	05/03/2018			05/04/2018 13:42	Lauren Bottorf	1989897
	05/03/2018			05/07/2018 13:57	Lauren Bottorf	1989892
	05/03/2018			05/07/2018 13:59	Lauren Bottorf	1989896
EPA 365.1 Rev. 2.0	05/03/2018	05/07/2018 13:25	Sima Feizi	05/09/2018 08:46	Beverly Y. Sanders	1989896
	05/03/2018	05/07/2018 13:25	Sima Feizi	05/09/2018 09:00	Beverly Y. Sanders	1989892
	05/03/2018	05/07/2018 13:25	Sima Feizi	05/09/2018 09:17	Beverly Y. Sanders	1989897
EPA 365.1 Rev. 2.0 dissolved	05/03/2018			05/03/2018 15:23	Megan Treadwell	1989898
	05/03/2018			05/03/2018 15:35	Megan Treadwell	1989893
	05/03/2018			05/03/2018 15:36	Megan Treadwell	1989899
EPA 8321B	05/03/2018	05/03/2018 17:00	Hoor Shaik	05/04/2018 17:23	Juyoung Kim	1989918
	05/03/2018	05/08/2018 10:00	Hoor Shaik	05/09/2018 07:23	Juyoung Kim	1989918
	05/03/2018	05/08/2018 10:00	Hoor Shaik	05/10/2018 04:15	Juyoung Kim	1989918
SM 2320 B-97	05/03/2018			05/11/2018 07:04	Dale L. Simmons	1989895
	05/03/2018			05/12/2018 08:46	Dale L. Simmons	1989891
	05/03/2018			05/12/2018 08:53	Dale L. Simmons	1989894
SM 2540 D-97	05/03/2018			05/04/2018 15:30	William L. Brown IV	1989891, 1989894, 1989895
SM 4500 F-C-97	05/03/2018			05/08/2018 17:31	Dale L. Simmons	1989891
	05/03/2018			05/08/2018 18:55	Dale L. Simmons	1989894
	05/03/2018			05/11/2018 07:04	Dale L. Simmons	1989895
SM 5310 B-00	05/03/2018			05/08/2018 07:14	Megan Treadwell	1989892
	05/03/2018			05/08/2018 07:26	Megan Treadwell	1989896
	05/03/2018			05/10/2018 23:15	Julia Storbeck	1989897