

Chemical Analysis Report

SW-DIST-2018-01-19-01

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

Event Description: **Pinellas Sites**
Request ID: **RQ-2018-01-15-53**
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: Judy Ashton

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 12-FEB-2018 12:46

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: SNUG HARBOR-TP428

Collection Date/Time: 01/18/2018 10:40

Field ID: G1SW0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960634	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P338511	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P338927	
	SM 2540 D-97	TSS	3	IA	mg/L	P338979	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P339308	
1960635	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P338944	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P338598	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P338634	
	EPA 365.1 Rev. 2.0	Total-P	0.093		mg P/L	P338834	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P338924	
1960636	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P338509	

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: PINELLAS PT. BASIN V TP455

Collection Date/Time: 01/18/2018 11:36

Field ID: G1SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960637	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P338511	
	SM 2320 B-97	Total Alkalinity	198		mg CaCO3/L	P339014	
	SM 2540 D-97	TSS	2	IA	mg/L	P338978	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P339019	RPD
1960638	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P338852	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P338600	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P338712	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P338582	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P338921	
1960639	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.23		mg P/L	P338507	

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: PP DITCH #1 @ 71ST STREET

Collection Date/Time: 01/18/2018 12:23

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960631	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P338511	
	SM 2320 B-97	Total Alkalinity	215		mg CaCO3/L	P338923	
	SM 2540 D-97	TSS	2	I	mg/L	P338977	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P339309	
1960632	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P338852	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P338597	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P338785	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P338877	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P338921	
1960633	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P338507	

Field ID: G5SW0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1960654	EPA 8321B	Sucralose**	3.5		ug/L	P338457	
	USGS O-2060-01	2,4-D	0.011		ug/L	P338463	
		Diuron	0.045		ug/L	P338463	
		Fenuron	0.0080	U	ug/L	P338463	
		Imidacloprid	0.051		ug/L	P338463	
		Bentazon	0.075		ug/L	P338463	
		Linuron	0.0040	U	ug/L	P338463	
		Acetaminophen**	0.0080	U	ug/L	P338463	
		MCPD	0.0032	I	ug/L	P338463	
		Carbamazepine**	0.0067		ug/L	P338463	
		Triclopyr**	0.0040	U	ug/L	P338463	
		Primidone**	0.033		ug/L	P338463	
		Fluridone**	0.29		ug/L	P338463	

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: P338511

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338852

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338944

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338597

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338598

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338600

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338600

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338634

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338712

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338785

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338582

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338834

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338877

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338507

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338509

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P338457

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P338923

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

Reference Method: SM 2320 B-97
Batch ID: P338927

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

Reference Method: SM 2320 B-97
Batch ID: P339014

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

Reference Method: SM 2540 D-97
Batch ID: P338977

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P338978

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P338979

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P339019

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P339308

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P339309

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P338921

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

Reference Method: SM 5310 B-00
Batch ID: P338924

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

Reference Method: USGS O-2060-01
Batch ID: P338463

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338852

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338944

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338597

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338598

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338600

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338634

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338712

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338785

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: P338582

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338834

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338877

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338507

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P338457

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	97.4		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P338923

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P338927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P339014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P339308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P339309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P338921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P338924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P338463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	79.4		P	40 - 150
Acetaminophen	97.1		P	30 - 150
Bentazon	80.1		P	30 - 150
Carbamazepine	102		P	40 - 150
Diuron	89.8		P	40 - 150
Fenuron	122		P	40 - 150
Fluridone	113		P	40 - 150
Imidacloprid	112		P	40 - 160
Linuron	99.2		P	40 - 150
MCP	81.4		P	40 - 150
Primidone	115		P	40 - 150
Triclopyr	72.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960646	Ammonia-N	96.8	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960070	Ammonia-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960865	Kjeldahl Nitrogen	108	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960635	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960638	Kjeldahl Nitrogen	106	99.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960172	NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960638	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961736	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960708	Total-P	96.1	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960635	Total-P	92.7	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961302	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960467	O-Phosphate-P	95.9	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960636	O-Phosphate-P	96.7	97.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P338457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960487	Sucralose	97.9	93.1	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
 Batch ID: P339019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961729	Fluoride	93.7	105	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P339308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1961888	Fluoride	96.5	97.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P339309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1962171	Fluoride	96.2	97.3	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P338921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960558	Organic Carbon	96.6	97.5	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P338924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960172	Organic Carbon	93.4	94.3	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P338463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1960453	2,4-D	133	138	P/P	40 - 150
1960453	Acetaminophen	99.9	96.7	P/P	30 - 150
1960453	Bentazon	95.9	97.0	P/P	30 - 150
1960453	Carbamazepine	107	106	P/P	40 - 150
1960453	Diuron	94.8	95.5	P/P	40 - 150
1960453	Fenuron	113	109	P/P	40 - 150
1960453	Fluridone	106	110	P/P	40 - 150
1960453	Imidacloprid	120	118	P/P	40 - 160
1960453	Linuron	99.9	99.1	P/P	40 - 150
1960453	MCP	111	119	P/P	40 - 150
1960453	Primidone	114	112	P/P	40 - 150
1960453	Triclopyr	118	126	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P338511

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P338511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960551	Turbidity	0.399	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960646	Ammonia-N	0.0477	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960070	Ammonia-N	0.389	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960865	Kjeldahl Nitrogen	7.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960635	Kjeldahl Nitrogen	2.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960638	Kjeldahl Nitrogen	4.22	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960172	NO2NO3-N	0.269	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960638	NO2NO3-N	0.351	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961736	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960708	Total-P	0.270	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960635	Total-P	2.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961302	Total-P	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960467	O-Phosphate-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960636	O-Phosphate-P	0.180	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P338457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960487	Sucralose	4.82	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P338923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961439	Total Alkalinity	0.671	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P338927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1959556	Total Alkalinity	0.0367	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P339014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961729	Total Alkalinity	0.332	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P339019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961729	Fluoride	9.10	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P339308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1961888	Fluoride	0.993	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P339309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1962171	Fluoride	0.977	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P338921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960558	Organic Carbon	0.641	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P338924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960172	Organic Carbon	0.720	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P338463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960453	2,4-D	3.61	Spike	P	0 - 30
1960453	Acetaminophen	3.31	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P338463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1960453	Bentazon	1.19	Spike	P	0 - 30
1960453	Carbamazepine	0.659	Spike	P	0 - 30
1960453	Diuron	0.799	Spike	P	0 - 30
1960453	Fenuron	3.70	Spike	P	0 - 30
1960453	Fluridone	3.90	Spike	P	0 - 30
1960453	Imidacloprid	1.68	Spike	P	0 - 30
1960453	Linuron	0.804	Spike	P	0 - 30
1960453	MCP	7.48	Spike	P	0 - 30
1960453	Primidone	2.39	Spike	P	0 - 30
1960453	Triclopyr	5.98	Spike	P	0 - 30

* 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: 1960654
Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	119	P	30 - 160
EPA 8321B	Carbamazepine-d10	111	P	30 - 160
EPA 8321B	Diuron-d6	97.4	P	30 - 160
EPA 8321B	Primidone-d5	126	P	30 - 160
EPA 8321B	Sucralose-d6	102	P	40 - 160
USGS O-2060-01	2,4-D-d3	91.1	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	119	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	111	P	30 - 160
USGS O-2060-01	Diuron-d6	97.4	P	30 - 160
USGS O-2060-01	Primidone-d5	126	P	30 - 160
USGS O-2060-01	Sucralose-d6	102	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81557
Included Lab Sample IDs: 1960633, 1960636, 1960639

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.7	P/P	90 - 110
O-Phosphate-P	99.7	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81558
Included Lab Sample IDs: 1960631, 1960634, 1960637

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81589

Included Lab Sample IDs: 1960638

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81606

Included Lab Sample IDs: 1960635

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: A81617

Included Lab Sample IDs: 1960632, 1960635, 1960638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110
Kjeldahl Nitrogen	104	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81625

Included Lab Sample IDs: 1960638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81644

Included Lab Sample IDs: 1960632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81665

Included Lab Sample IDs: 1960632, 1960638

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

Reference Method: USGS O-2060-01

Run ID: A81671

Included Lab Sample IDs: 1960654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	86.9	89.8	P/P	50 - 150
Acetaminophen	103	101	P/P	60 - 150
Bentazon	104	96.6	P/P	50 - 150
Carbamazepine	103	112	P/P	60 - 150
Diuron	105	111	P/P	60 - 150
Fenuron	102	105	P/P	60 - 150
Fluridone	113	122	P/P	60 - 160
Imidacloprid	96.1	107	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A81671

Included Lab Sample IDs: 1960654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Linuron	89.2	104	P/P	60 - 150
MCP	95.7	94.8	P/P	50 - 150
Primidone	103	103	P/P	60 - 150
Triclopyr	99.5	84.0	P/P	50 - 150

Reference Method: SM 2320 B-97

Run ID: A81689

Included Lab Sample IDs: 1960631, 1960634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	97.2	P/P	90 - 110
Total Alkalinity	99.4	97.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A81692

Included Lab Sample IDs: 1960632, 1960635, 1960638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	97.2	P/P	90 - 110
Organic Carbon	98.4	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81703

Included Lab Sample IDs: 1960632

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81704

Included Lab Sample IDs: 1960635

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81706

Included Lab Sample IDs: 1960635

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

Reference Method: EPA 8321B

Run ID: A81725

Included Lab Sample IDs: 1960654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	98.8	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A81736
Included Lab Sample IDs: 1960637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.1	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A81736
Included Lab Sample IDs: 1960637

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

Reference Method: SM 4500 F-C-97
Run ID: A81839
Included Lab Sample IDs: 1960631, 1960634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	101	P/P	90 - 110
Fluoride	99.5	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.399	
EPA 350.1 Rev. 2.0	Ammonia-N	106	96.8	96.8			0.0477
	Ammonia-N	99.0	103	103			0.389
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	108	99.5			7.54
	Kjeldahl Nitrogen	105	101	103			2.10
	Kjeldahl Nitrogen	107	106	99.2			4.22
EPA 353.2 Rev. 2.0	NO2NO3-N	104	105	106			0.269
	NO2NO3-N	102	104	104			0.351
	NO2NO3-N	104	104	103			0.484
EPA 365.1 Rev. 2.0	Total-P	101	96.1	96.4			0.270
	Total-P	97.8	92.7	95.3			2.48
	Total-P	102	102	101			1.01
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.1	95.9	98.3			1.49
	O-Phosphate-P	97.6	96.7	97.0			0.180
EPA 8321B	Sucralose	97.4	97.9	93.1			4.82
SM 2320 B-97	Total Alkalinity	99.5				0.671	
	Total Alkalinity	99.5				0.0367	
	Total Alkalinity	98.5				0.332	
SM 4500 F-C-97	Fluoride	97.1	93.7	105			9.10
	Fluoride	96.6	96.5	97.9			0.993
	Fluoride	98.9	96.2	97.3			0.977
SM 5310 B-00	Organic Carbon	96.6	96.6	97.5			0.641
	Organic Carbon	96.7	93.4	94.3			0.720
USGS O-2060-01	2,4-D	79.4	138	133			3.61

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Acetaminophen	97.1	99.9	96.7			3.31
	Bentazon	80.1	97.0	95.9			1.19
	Carbamazepine	102	107	106			0.659
	Diuron	89.8	94.8	95.5			0.799
	Fenuron	122	113	109			3.70
	Fluridone	113	110	106			3.90
	Imidacloprid	112	120	118			1.68
	Linuron	99.2	99.9	99.1			0.804
	MCP	81.4	119	111			7.48
	Primidone	115	114	112			2.39
	Triclopyr	72.2	126	118			5.98

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1960631, 1960634, 1960637
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1960632, 1960635, 1960638
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1960632, 1960635, 1960638
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1960632, 1960635, 1960638
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1960632, 1960635, 1960638
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1960633, 1960636, 1960639
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1960654
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1960631, 1960634, 1960637
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1960631, 1960634, 1960637
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1960631, 1960634, 1960637
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1960632, 1960635, 1960638
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1960654
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1960654

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	01/19/2018			01/19/2018 16:30	DeAsia Armster	1960631, 1960634, 1960637
EPA 350.1 Rev. 2.0	01/19/2018			01/25/2018	Ping Hua	1960632, 1960638
	01/19/2018			01/26/2018	Ping Hua	1960635
EPA 351.2 Rev. 2.0	01/19/2018	01/23/2018	Adrian Shelby	01/24/2018	Joseph Suarez	1960632, 1960635, 1960638
EPA 353.2 Rev. 2.0	01/19/2018			01/23/2018	Lauren Bottorf	1960635
	01/19/2018			01/24/2018	Lauren Bottorf	1960638
	01/19/2018			01/25/2018	Beverly Y. Sanders	1960632
EPA 365.1 Rev. 2.0	01/19/2018	01/22/2018	Sima Feizi	01/23/2018	Beverly Y. Sanders	1960638
	01/19/2018	01/26/2018	Sima Feizi	01/29/2018	Lipi Saha	1960632, 1960635
EPA 365.1 Rev. 2.0 dissolved	01/19/2018			01/19/2018 15:50	Megan Treadwell	1960636
	01/19/2018			01/19/2018 16:02	Megan Treadwell	1960633
	01/19/2018			01/19/2018 16:03	Megan Treadwell	1960639
EPA 8321B	01/19/2018	01/25/2018	Juyoung Kim	01/25/2018	Juyoung Kim	1960654
SM 2320 B-97	01/19/2018			01/27/2018	Lauren Bottorf	1960631, 1960634
	01/19/2018			01/30/2018	Lauren Bottorf	1960637
SM 2540 D-97	01/19/2018			01/24/2018	Yijie Li	1960631, 1960634, 1960637
SM 4500 F-C-97	01/19/2018			01/30/2018	Lauren Bottorf	1960637
	01/19/2018			02/03/2018	Dale L. Simmons	1960631, 1960634
SM 5310 B-00	01/19/2018			01/26/2018	Megan Treadwell	1960632
	01/19/2018			01/27/2018	Megan Treadwell	1960635, 1960638
USGS O-2060-01	01/19/2018	01/23/2018	Hoor Shaik	01/24/2018	Julie Michelle Frank	1960654