

Chemical Analysis Report

WQAP-2017-07-25-03

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

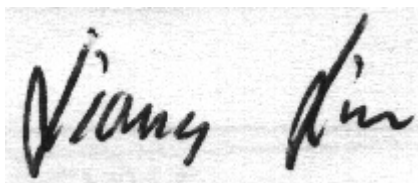
Event Description: **Simms Branch**
Request ID: **RQ-2017-07-24-25**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-AUG-2017 12:00

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Sims Branch

Collection Date/Time: 07/24/2017 09:40

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916004	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P329070	
	SM 2320 B-97	Total Alkalinity	123		mg CaCO3/L	P329183	
	SM 2540 D-97	TSS	4	I	mg/L	P329371	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P329187	
1916007	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P329230	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P329449	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P329211	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P329224	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P329613	
1916010	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P329073	

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: Sims Branch

Collection Date/Time: 07/24/2017 09:40

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916052	EPA 8321B	Sucralose**	11		ug/L	P329066	
	USGS O-2060-01	2,4-D	0.0090		ug/L	P329107	MS
		Diuron	0.0081		ug/L	P329107	
		Fenuron	0.0080	U	ug/L	P329107	
		Imidacloprid	0.017		ug/L	P329107	
		Bentazon	0.0093		ug/L	P329107	MS
		Linuron	0.0040	U	ug/L	P329107	
		Acetaminophen**	0.0080	U	ug/L	P329107	
		MCP	0.0020	U	ug/L	P329107	
		Carbamazepine**	0.033		ug/L	P329107	
		Triclopyr**	0.0040	U	ug/L	P329107	
		Primidone**	0.079		ug/L	P329107	
		Fluridone**	0.0020		ug/L	P329107	MS, RPD

Sample Location: Sims Branch dup

Collection Date/Time: 07/24/2017 09:45

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916005	EPA 180.1 Rev. 2.0	Turbidity	2.1	A	NTU	P329072	
	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P329183	
	SM 2540 D-97	TSS	4	I	mg/L	P329371	
	SM 4500 F-C-97	Fluoride	0.99		mg F/L	P329187	
1916008	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P329230	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P329449	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P329211	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P329224	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P329613	

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916011	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P329073	

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: Sims Branch dup

Collection Date/Time: 07/24/2017 09:45

Field ID: G1SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916053	EPA 8321B	Sucralose**	13		ug/L	P329067	
	USGS O-2060-01	2,4-D	0.0083		ug/L	P329107	MS
		Diuron	0.0081		ug/L	P329107	
		Fenuron	0.0080	U	ug/L	P329107	
		Imidacloprid	0.020		ug/L	P329107	
		Bentazon	0.0084		ug/L	P329107	MS
		Linuron	0.0040	U	ug/L	P329107	
		Acetaminophen**	0.0080	U	ug/L	P329107	
		MCP	0.0020	U	ug/L	P329107	
		Carbamazepine**	0.039		ug/L	P329107	
		Triclopyr**	0.0040	U	ug/L	P329107	
		Primidone**	0.090		ug/L	P329107	
		Fluridone**	0.0018		ug/L	P329107	MS, RPD

Ref. Method and Comment:

EPA 8321B: MS accuracy for sucralose could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: BLANK

Collection Date/Time: 07/24/2017 09:50

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916006	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P329072	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P329182	
	SM 2540 D-97	TSS	2	U	mg/L	P329369	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329186	
1916009	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P329229	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P329615	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P329320	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P329223	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P329395	
1916012	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P329071	

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: BLANK

Collection Date/Time: 07/24/2017 09:50

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916054	EPA 8321B	Sucralose**	0.010	U	ug/L	P329067	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1916054	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P329107	MS
		Diuron	8.0E-04	U	ug/L	P329107	
		Fenuron	0.0080	U	ug/L	P329107	
		Imidacloprid	8.0E-04	U	ug/L	P329107	
		Bentazon	8.0E-04	U	ug/L	P329107	MS
		Linuron	0.0040	U	ug/L	P329107	
		Acetaminophen**	0.0080	U	ug/L	P329107	
		MCPD	0.0020	U	ug/L	P329107	
		Carbamazepine**	4.0E-04	U	ug/L	P329107	
		Triclopyr**	0.0040	U	ug/L	P329107	
		Primidone**	0.0040	U	ug/L	P329107	
		Fluridone**	4.0E-04	U	ug/L	P329107	MS, RPD

Ref. Method and Comment:
EPA 8321B: MS accuracy for sucralose could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329070

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329072

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329229

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329230

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329449

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329615

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329211

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329320

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329223

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329224

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329071

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329073

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

Reference Method: EPA 8321B
Batch ID: P329066

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P329067

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P329182

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P329183

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

Reference Method: SM 2540 D-97
Batch ID: P329369

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P329371

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P329186

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P329187

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329395

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

Reference Method: SM 5310 B-00
Batch ID: P329613

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

Reference Method: USGS O-2060-01
Batch ID: P329107

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	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P329107

Component	Result	Code	Units
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: P329229

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329230

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329449

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329615

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329211

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: P329320

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329223

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.9		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329224

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329073

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

Reference Method: EPA 8321B
Batch ID: P329066

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	56.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P329067

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	61.6		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P329182

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P329183

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P329186

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P329187

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P329395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P329613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P329107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	105		P	40 - 150
Acetaminophen	91.9		P	30 - 150
Bentazon	107		P	40 - 150
Carbamazepine	96.7		P	40 - 150
Diuron	116		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	94.1		P	40 - 150
Imidacloprid	102		P	40 - 160
Linuron	97.0		P	40 - 150
MCP	94.4		P	40 - 150
Primidone	116		P	40 - 150
Triclopyr	94.4		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915961	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329230

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1916007	Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915931	Kjeldahl Nitrogen	103	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915962	Kjeldahl Nitrogen	100	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1916081	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1916063	NO2NO3-N	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915935	Total-P	95.4	93.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915858	O-Phosphate-P	93.0	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1916083	O-Phosphate-P	91.8	94.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P329066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915441	Sucralose	66.4	61.9	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P329186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915855	Fluoride	97.0	98.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P329187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915321	Fluoride	97.6	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P329395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915916	Organic Carbon	108	109	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P329613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1916007	Organic Carbon	91.3	91.6	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P329107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1916003	2,4-D	150	148	F/P	40 - 150
1916003	Acetaminophen	95.9	124	P/P	30 - 150
1916003	Bentazon	38.5	32.7	F/F	40 - 150
1916003	Carbamazepine	104	97.1	P/P	40 - 150
1916003	Diuron	68.4	74.7	P/P	40 - 150
1916003	Fenuron	69.8	72.5	P/P	40 - 150
1916003	Fluridone	37.7	60.2	F/P	40 - 150
1916003	Imidacloprid	107	135	P/P	40 - 160
1916003	Linuron	70.9	81.7	P/P	40 - 150
1916003	MCCP	123	127	P/P	40 - 150
1916003	Primidone	103	112	P/P	40 - 150
1916003	Triclopyr	108	128	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P329070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915883	Turbidity	3.04	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P329072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916005	Turbidity	3.77	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P329229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915961	Ammonia-N	0.220	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P329230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916007	Ammonia-N	0.975	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915931	Kjeldahl Nitrogen	3.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915962	Kjeldahl Nitrogen	2.66	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916081	NO2NO3-N	0.456	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916063	NO2NO3-N	1.98	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916075	Total-P	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915935	Total-P	2.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915858	O-Phosphate-P	2.34	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916083	O-Phosphate-P	3.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P329066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915441	Sucralose	7.00	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P329067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916053	Sucralose	8.70	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P329182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915855	Total Alkalinity	0.170	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P329183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916079	Total Alkalinity	0.465	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P329186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915855	Fluoride	1.02	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P329187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915321	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915916	Organic Carbon	0.625	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P329613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916007	Organic Carbon	0.332	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P329107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1916003	2,4-D	0.772	Spike	P	0 - 30
1916003	Acetaminophen	19.0	Spike	P	0 - 30
1916003	Bentazon	7.55	Spike	P	0 - 30
1916003	Carbamazepine	6.79	Spike	P	0 - 30
1916003	Diuron	8.46	Spike	P	0 - 30
1916003	Fenuron	3.82	Spike	P	0 - 30
1916003	Fluridone	41.3	Spike	F	0 - 30
1916003	Imidacloprid	7.60	Spike	P	0 - 30
1916003	Linuron	14.2	Spike	P	0 - 30
1916003	MCP	3.20	Spike	P	0 - 30
1916003	Primidone	8.76	Spike	P	0 - 30
1916003	Triclopyr	17.3	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: 1916052
Field Sample ID: G1SW0056

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	131	P	40 - 160
USGS O-2060-01	2,4-D-d3	94.6	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	73.1	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	109	P	30 - 160
USGS O-2060-01	Diuron-d6	99.8	P	30 - 160
USGS O-2060-01	Primidone-d5	84.9	P	30 - 160

Lab Sample ID: 1916053
Field Sample ID: G1SW0056

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	145	P	40 - 160
USGS O-2060-01	2,4-D-d3	101	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	76.3	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	99.8	P	30 - 160
USGS O-2060-01	Diuron-d6	92.8	P	30 - 160
USGS O-2060-01	Primidone-d5	86.9	P	30 - 160

Lab Sample ID: 1916054
Field Sample ID: BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	110	P	40 - 160
USGS O-2060-01	2,4-D-d3	78.5	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	89.2	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	95.9	P	30 - 160
USGS O-2060-01	Diuron-d6	116	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1916054
Field Sample ID: BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Primidone-d5	90.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77936
Included Lab Sample IDs: 1916004, 1916005, 1916006

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77937
Included Lab Sample IDs: 1916010, 1916011, 1916012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.5	P/P	90 - 110
O-Phosphate-P	99.2	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A77980
Included Lab Sample IDs: 1916004, 1916005, 1916006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A77980
Included Lab Sample IDs: 1916004, 1916005, 1916006

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	97.4	P/P	90 - 110
Fluoride	97.1	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77988
Included Lab Sample IDs: 1916007, 1916008

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77993
Included Lab Sample IDs: 1916007, 1916008, 1916009

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77993

Included Lab Sample IDs: 1916007, 1916008, 1916009

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78018

Included Lab Sample IDs: 1916009

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78022

Included Lab Sample IDs: 1916009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78049

Included Lab Sample IDs: 1916007, 1916008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78052

Included Lab Sample IDs: 1916009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78124

Included Lab Sample IDs: 1916007, 1916008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78156

Included Lab Sample IDs: 1916007, 1916008

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78190

Included Lab Sample IDs: 1916009

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	96.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A78247

Included Lab Sample IDs: 1916052, 1916053, 1916054

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	116	115	P/P	60 - 160
Sucralose	120	88.1	P/P	60 - 160
Sucralose	85.9	116	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A78250

Included Lab Sample IDs: 1916054

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	76.3	73.4	P/P	50 - 150
Acetaminophen	99.5	87.8	P/P	60 - 150
Bentazon	80.8	122	P/P	50 - 150
Carbamazepine	101	89.6	P/P	60 - 150
Diuron	101	93.4	P/P	60 - 150
Fenuron	99.9	96.3	P/P	60 - 150
Fluridone	103	104	P/P	60 - 160
Imidacloprid	95.5	83.4	P/P	60 - 150
Linuron	81.7	88.7	P/P	60 - 150
MCP	96.4	82.7	P/P	50 - 150
Primidone	93.4	97.2	P/P	60 - 150
Triclopyr	82.9	84.2	P/P	50 - 150

Reference Method: USGS O-2060-01

Run ID: A78403

Included Lab Sample IDs: 1916052, 1916053

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	113	104	P/P	50 - 150
Acetaminophen	70.4	76.7	P/P	60 - 150
Bentazon	107	113	P/P	50 - 150
Carbamazepine	76.3	84.1	P/P	60 - 150
Diuron	77.4	68.3	P/P	60 - 150
Fenuron	79.0	80.1	P/P	60 - 150
Fluridone	109	109	P/P	60 - 160
Imidacloprid	80.7	87.0	P/P	60 - 150
Linuron	96.6	78.2	P/P	60 - 150
MCP	96.8	93.5	P/P	50 - 150
Primidone	84.6	71.7	P/P	60 - 150
Triclopyr	108	110	P/P	50 - 150

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision	MS
				LCS	SMP
EPA 180.1 Rev. 2.0	Turbidity			3.04	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.77	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	103			0.220
	Ammonia-N	101	107	106			0.975
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	103	107			3.16
	Kjeldahl Nitrogen	103	100	103			2.66
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	104	104			0.456
	NO ₂ NO ₃ -N	105	101	103			1.98
EPA 365.1 Rev. 2.0	Total-P	97.9					1.04
	Total-P	99.2	95.4	93.2			2.36
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	93.0	95.2			2.34
	O-Phosphate-P	102	91.8	94.7			3.11
EPA 8321B	Sucralose	56.0	66.4	61.9			7.00
	Sucralose	61.6					8.70
SM 2320 B-97	Total Alkalinity	102				0.170	
	Total Alkalinity	104				0.465	
SM 4500 F-C-97	Fluoride	95.5	97.0	98.3			1.02
	Fluoride	96.5	97.6	97.6			0.0
SM 5310 B-00	Organic Carbon	96.5	108	109			0.625
	Organic Carbon	96.4	91.3	91.6			0.332
USGS O-2060-01	2,4-D	105	150	148			0.772
	Acetaminophen	91.9	95.9	124			19.0
	Bentazon	107	38.5	32.7			7.55
	Carbamazepine	96.7	104	97.1			6.79
	Diuron	116	68.4	74.7			8.46
	Fenuron	112	69.8	72.5			3.82
	Fluridone	94.1	37.7	60.2			41.3
	Imidacloprid	102	107	135			7.60
	Linuron	97.0	70.9	81.7			14.2
	MCPP	94.4	123	127			3.20
	Primidone	116	103	112			8.76
	Triclopyr	94.4	108	128			17.3

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1916004, 1916005, 1916006
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1916007, 1916008, 1916009
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1916007, 1916008, 1916009
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1916007, 1916008, 1916009
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1916007, 1916008, 1916009
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1916010, 1916011, 1916012
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1916052, 1916053, 1916054
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1916004, 1916005, 1916006
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1916004, 1916005, 1916006
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1916004, 1916005, 1916006
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1916007, 1916008, 1916009
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1916052, 1916053, 1916054
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1916052, 1916053, 1916054

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	07/25/2017			07/25/2017 15:29	DeAsia Armster	1916004, 1916005, 1916006
EPA 350.1 Rev. 2.0	07/25/2017			07/26/2017	Sofia Elnemr	1916007, 1916008, 1916009
EPA 351.2 Rev. 2.0	07/25/2017	08/01/2017	Adrian Shelby	08/02/2017	Joseph Suarez	1916007, 1916008
	07/25/2017	08/03/2017	Adrian Shelby	08/04/2017	Joseph Suarez	1916009
EPA 353.2 Rev. 2.0	07/25/2017			07/27/2017	Beverly Y. Sanders	1916007, 1916008
	07/25/2017			07/28/2017	Beverly Y. Sanders	1916009
EPA 365.1 Rev. 2.0	07/25/2017	07/27/2017	Adrian Shelby	07/28/2017	Lipi Saha	1916007, 1916008, 1916009
EPA 365.1 Rev. 2.0 dissolved	07/25/2017			07/25/2017 15:04	Ping Hua	1916012
	07/25/2017			07/25/2017 15:08	Ping Hua	1916010
	07/25/2017			07/25/2017 15:13	Ping Hua	1916011
EPA 8321B	07/25/2017	07/27/2017	Julie Michelle Frank	08/04/2017	Mohammad Ghaffari	1916052, 1916053, 1916054
SM 2320 B-97	07/25/2017			07/27/2017	Dale L. Simmons	1916004, 1916005, 1916006
SM 2540 D-97	07/25/2017			07/26/2017	Yijie Li	1916004, 1916005, 1916006
SM 4500 F-C-97	07/25/2017			07/27/2017	Dale L. Simmons	1916004, 1916005, 1916006
SM 5310 B-00	07/25/2017			07/28/2017	Sofia Elnemr	1916009
	07/25/2017			08/03/2017	Ping Hua	1916007, 1916008
USGS O-2060-01	07/25/2017	07/28/2017	Hoor Shaik	08/02/2017	Juyoung Kim	1916054
	07/25/2017	07/28/2017	Hoor Shaik	08/10/2017	Juyoung Kim	1916052, 1916053