

Chemical Analysis Report

WQAP-2017-05-09-03

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

Event Description: **SMP 2017 Freshwater Kit A with B/T/M**
Request ID: **RQ-2017-04-17-34**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 02-JUN-2017 14:31



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: Ocklawaha Creek @ SR 267

Collection Date/Time: 05/09/2017 11:00

Field ID: G1TLHR0053-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897670	EPA 180.1 Rev. 2.0	Turbidity	1.3	A	NTU	P324935	
	EPA 300.0 Rev. 2.1	Chloride	2.1		mg Cl/L	P325825	
	SM 2120 B	Color (true)	84		PCU	P325026	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P325520	
	SM 2540 C-97	TDS	33		mg/L	P325629	
	SM 2540 D-97	TSS	2	I	mg/L	P325667	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325809	RPD
1897672	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P325049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P325155	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.092		mg N/L	P325198	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P325211	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P325232	
1897674	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P325041	
1897682	EPA 8321B	Sucralose**	0.010	U	ug/L	P324900	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P324958	
		Diuron	8.0E-04	U	ug/L	P324958	
		Fenuron	0.0040	U	ug/L	P324958	
		Imidacloprid	8.0E-04	U	ug/L	P324958	MS
		Bentazon	8.0E-04	U	ug/L	P324958	
		Linuron	0.0040	U	ug/L	P324958	
		Acetaminophen**	0.0080	U	ug/L	P324958	
		MCP	8.0E-04	U	ug/L	P324958	
		Carbamazepine**	4.0E-04	U	ug/L	P324958	
		Triclopyr**	0.0040	U	ug/L	P324958	
		Primidone**	0.0040	U	ug/L	P324958	
		Fluridone**	4.0E-04	U	ug/L	P324958	

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: Bear Creek @ SR 257

Collection Date/Time: 05/09/2017 11:40

Field ID: G1TLHR0052-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897671	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P324935	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P325826	
	SM 2120 B	Color (true)	71		PCU	P325026	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P325520	
	SM 2540 C-97	TDS	40		mg/L	P325629	
	SM 2540 D-97	TSS	3	I	mg/L	P325667	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P325809	RPD
1897673	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P325049	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P325346	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.059		mg N/L	P325199	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P325211	

Field ID: G1TLHR0052-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897673	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P325232	
1897675	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P324939	
1897683	EPA 8321B	Sucralose**	0.010	U	ug/L	P324900	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P324958	
		Diuron	0.0030	I	ug/L	P324958	
		Fenuron	0.0040	U	ug/L	P324958	
		Imidacloprid	8.0E-04	U	ug/L	P324958	MS
		Bentazon	8.0E-04	U	ug/L	P324958	
		Linuron	0.0040	U	ug/L	P324958	
		Acetaminophen**	0.0080	U	ug/L	P324958	
		MCP	8.0E-04	U	ug/L	P324958	
		Carbamazepine**	4.0E-04	U	ug/L	P324958	
		Triclopyr**	0.0040	U	ug/L	P324958	
		Primidone**	0.0040	U	ug/L	P324958	
		Fluridone**	4.8E-04	I	ug/L	P324958	

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: P324935

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P325825

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P325826

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P325049

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P325155

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325198

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325199

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325211

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324939

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325041

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

Reference Method: EPA 8321B
Batch ID: P324900

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P325026

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325520

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
 Batch ID: P325629

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P325667

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P325809

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P325232

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

Reference Method: USGS O-2060-01
 Batch ID: P324958

Component	Result	Code	Units
2,4-D	8.0E-04	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	0.0040	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPPP	8.0E-04	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 300.0 Rev. 2.1
 Batch ID: P325825

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P325826

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325049

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: P325155

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

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: P325198

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: P325199

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325211

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: P324939

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325041

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

Reference Method: EPA 8321B
Batch ID: P324900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	89.1		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P325520

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

Reference Method: SM 4500 F-C-97
Batch ID: P325809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P325232

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

Reference Method: USGS O-2060-01
Batch ID: P324958

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	65.0		P	40 - 140
Acetaminophen	81.3		P	40 - 140
Bentazon	56.7		P	40 - 140
Carbamazepine	88.2		P	40 - 140
Diuron	117		P	40 - 140
Fenuron	117		P	40 - 140
Fluridone	94.2		P	40 - 140
Imidacloprid	113		P	40 - 160
Linuron	111		P	40 - 140
MCP	69.0		P	40 - 140
Primidone	101		P	40 - 140
Triclopyr	66.6		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897280	Chloride	97.5		P	90 - 110
1898026	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898024	Chloride	101		P	90 - 110
1898025	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897211	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897455	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897955	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897457	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897687	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897730	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897296	O-Phosphate-P	100	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897732	O-Phosphate-P	95.9	97.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P324900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897662	Sucralose	91.7	96.9	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P325809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898240	Fluoride	93.8	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P325232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897211	Organic Carbon	91.9	92.6	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P324958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897361	2,4-D	67.6	62.2	P/P	40 - 140
1897361	Acetaminophen	80.7	96.1	P/P	40 - 140
1897361	Bentazon	64.4	58.9	P/P	40 - 140
1897361	Carbamazepine	76.0	76.4	P/P	40 - 140
1897361	Diuron	89.9	83.7	P/P	40 - 140
1897361	Fenuron	80.1	77.8	P/P	40 - 140
1897361	Fluridone	66.7	54.6	P/P	40 - 140
1897361	Imidacloprid	201	188	F/F	40 - 160
1897361	Linuron	101	95.8	P/P	40 - 140
1897361	MCP	59.3	55.9	P/P	40 - 140
1897361	Primidone	100	97.5	P/P	40 - 140
1897361	Triclopyr	58.8	57.9	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897670	Turbidity	8.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897280	Chloride	0.385	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898024	Chloride	0.249	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897211	Ammonia-N	0.435	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897455	Kjeldahl Nitrogen	2.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897955	Kjeldahl Nitrogen	1.76	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897457	NO2NO3-N	0.458	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897687	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897730	Total-P	0.800	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897296	O-Phosphate-P	0.0944	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897732	O-Phosphate-P	1.16	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P324900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897662	Sucralose	5.43	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P325026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897739	Color (true)	1.58	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898240	Total Alkalinity	0.00206	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P325629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897697	TDS	2.04	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898240	Fluoride	4.09	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P325232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897211	Organic Carbon	0.694	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P324958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897361	2,4-D	7.18	Spike	P	0 - 30
1897361	Acetaminophen	17.4	Spike	P	0 - 30
1897361	Bentazon	6.98	Spike	P	0 - 30
1897361	Carbamazepine	0.466	Spike	P	0 - 30
1897361	Diuron	7.00	Spike	P	0 - 30
1897361	Fenuron	2.84	Spike	P	0 - 30
1897361	Fluridone	10.1	Spike	P	0 - 30
1897361	Imidacloprid	6.57	Spike	P	0 - 30
1897361	Linuron	4.89	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P324958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897361	MCP	5.68	Spike	P	0 - 30
1897361	Primidone	2.79	Spike	P	0 - 30
1897361	Triclopyr	1.58	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: 1897682
Field Sample ID: G1TLHR0053-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	96.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	83.9	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	71.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	93.1	P	30 - 160
USGS O-2060-01	Diuron-d6	90.0	P	30 - 150
USGS O-2060-01	Primidone-d5	90.6	P	30 - 150

Lab Sample ID: 1897683
Field Sample ID: G1TLHR0052-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	94.0	P	40 - 150
USGS O-2060-01	2,4-D-d3	81.8	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	75.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	90.5	P	30 - 160
USGS O-2060-01	Diuron-d6	85.9	P	30 - 150
USGS O-2060-01	Primidone-d5	90.5	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76301
Included Lab Sample IDs: 1897670, 1897671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76302
Included Lab Sample IDs: 1897675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A76330

Included Lab Sample IDs: 1897670, 1897671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76333

Included Lab Sample IDs: 1897674

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76336

Included Lab Sample IDs: 1897672, 1897673

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76377

Included Lab Sample IDs: 1897672, 1897673

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

Reference Method: SM 5310 B-00

Run ID: A76393

Included Lab Sample IDs: 1897672, 1897673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.6	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76415

Included Lab Sample IDs: 1897673

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76427

Included Lab Sample IDs: 1897672

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76474

Included Lab Sample IDs: 1897672

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76520

Included Lab Sample IDs: 1897673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.3	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76528

Included Lab Sample IDs: 1897670, 1897671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A76559

Included Lab Sample IDs: 1897682, 1897683

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	98.8	82.1	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A76569

Included Lab Sample IDs: 1897682, 1897683

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	99.2	100	P/P	50 - 150
Acetaminophen	91.6	88.0	P/P	60 - 150
Bentazon	102	106	P/P	50 - 150
Carbamazepine	108	103	P/P	60 - 150
Diuron	102	98.8	P/P	60 - 150
Fenuron	110	101	P/P	60 - 150
Fluridone	112	101	P/P	60 - 150
Imidacloprid	87.2	99.2	P/P	60 - 150
Linuron	102	93.2	P/P	60 - 150
MCPP	96.0	96.4	P/P	50 - 150
Primidone	102	80.8	P/P	60 - 150
Triclopyr	102	104	P/P	50 - 150

Reference Method: SM 4500 F-C-97

Run ID: A76661

Included Lab Sample IDs: 1897670, 1897671

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76672

Included Lab Sample IDs: 1897670, 1897671

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

Quality Assurance Report Calibration Verification

* 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		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					8.70	
EPA 300.0 Rev. 2.1	Chloride	101	97.5	98.8		0.385	
	Chloride	103	101	101		0.249	
EPA 350.1 Rev. 2.0	Ammonia-N	101	103	102			0.435
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	105	102			2.25
	Kjeldahl Nitrogen	101	99.0	101			1.76
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	103	104			0.458
	NO ₂ NO ₃ -N	103	99.5	100			0.501
EPA 365.1 Rev. 2.0	Total-P	102	106	105			0.800
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	100	99.9			0.0944
	O-Phosphate-P	98.9	95.9	97.1			1.16
EPA 8321B	Sucralose	89.1	91.7	96.9			5.43
SM 2120 B	Color (true)					1.58	
SM 2320 B-97	Total Alkalinity	104				0.0020	
SM 2540 C-97	TDS					2.04	
SM 4500 F-C-97	Fluoride	99.9	93.8	98.5			4.09
SM 5310 B-00	Organic Carbon	96.2	91.9	92.6			0.694
USGS O-2060-01	2,4-D	65.0	67.6	62.2			7.18
	Acetaminophen	81.3	80.7	96.1			17.4
	Bentazon	56.7	64.4	58.9			6.98
	Carbamazepine	88.2	76.0	76.4			0.466
	Diuron	117	89.9	83.7			7.00
	Fenuron	117	80.1	77.8			2.84
	Fluridone	94.2	66.7	54.6			10.1
	Imidacloprid	113	201	188			6.57
	Linuron	111	101	95.8			4.89
	MCP	69.0	59.3	55.9			5.68
	Primidone	101	100	97.5			2.79
	Triclopyr	66.6	58.8	57.9			1.58

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1897670, 1897671
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1897670, 1897671
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1897672, 1897673
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1897672, 1897673
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1897672, 1897673
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1897672, 1897673
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1897674, 1897675

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1897682, 1897683
SM 2120 B / E31780	True Color measured at 450 nm	1897670, 1897671
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1897670, 1897671
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1897670, 1897671
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1897670, 1897671
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1897670, 1897671
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1897672, 1897673
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1897682, 1897683
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1897682, 1897683

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	05/09/2017			05/09/2017 15:52	Sima Feizi	1897670, 1897671
EPA 300.0 Rev. 2.1	05/09/2017			05/24/2017	Ping Hua	1897670, 1897671
EPA 350.1 Rev. 2.0	05/09/2017			05/10/2017	Julie Michelle Frank	1897672, 1897673
EPA 351.2 Rev. 2.0	05/09/2017	05/12/2017	Adrian Shelby	05/17/2017	Joseph Suarez	1897672
	05/09/2017	05/16/2017	Adrian Shelby	05/18/2017	Joseph Suarez	1897673
EPA 353.2 Rev. 2.0	05/09/2017			05/12/2017	Beverly Y. Sanders	1897672, 1897673
EPA 365.1 Rev. 2.0	05/09/2017	05/12/2017	Vijayalakshmi Reddy	05/15/2017	Lipi Saha	1897672, 1897673
EPA 365.1 Rev. 2.0 dissolved	05/09/2017			05/09/2017 15:52	Anthony C. Onicha	1897675
	05/09/2017			05/10/2017 15:13	Anthony C. Onicha	1897674
EPA 8321B	05/09/2017	05/18/2017	Mohammad Ghaffari	05/19/2017	Mohammad Ghaffari	1897682, 1897683
SM 2120 B	05/09/2017			05/10/2017 14:58	Julia Storbeck	1897670
	05/09/2017			05/10/2017 14:59	Julia Storbeck	1897671
SM 2320 B-97	05/09/2017			05/18/2017	Dale L. Simmons	1897670, 1897671
SM 2540 C-97	05/09/2017			05/12/2017	Yijie Li	1897670, 1897671
SM 2540 D-97	05/09/2017			05/12/2017	Yijie Li	1897670, 1897671
SM 4500 F-C-97	05/09/2017			05/24/2017	Dale L. Simmons	1897670, 1897671
SM 5310 B-00	05/09/2017			05/12/2017	Christopher Armour	1897672, 1897673
USGS O-2060-01	05/09/2017	05/15/2017	Hoor Shaik	05/20/2017	Juyoung Kim	1897682, 1897683