

Chemical Analysis Report

WQAP-2017-05-10-06

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

Event Description: **run 7**
Request ID: **RQ-2017-05-08-24**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 05-JUN-2017 13:44



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: HIAWATHA

Collection Date/Time: 05/09/2017 09:30

Field ID: G1SW0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898176	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P325039	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P325827	
		Sulfate	7.3		mg SO4/L	P325831	
	SM 2120 B	Color (true)	25		PCU	P325028	
	SM 2320 B-97	Total Alkalinity	3.5		mg CaCO3/L	P325466	
	SM 2540 C-97	TDS	91		mg/L	P325631	
	SM 2540 D-97	TSS	3	I	mg/L	P325669	
	SM 4500 F-C-97	Fluoride	0.087	I	mg F/L	P325468	
1898180	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P325390	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325351	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P325212	
	SM 5310 B-00	Organic Carbon	8.4		mg C/L	P325359	
1898184	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325041	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LITTLE LAKE WILSON

Collection Date/Time: 05/09/2017 10:20

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898177	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P325039	
	EPA 300.0 Rev. 2.1	Chloride	55		mg Cl/L	P325827	
		Sulfate	2.1		mg SO4/L	P325831	
	SM 2120 B	Color (true)	48		PCU	P325028	
	SM 2320 B-97	Total Alkalinity	65		mg CaCO3/L	P325466	
	SM 2540 C-97	TDS	194		mg/L	P325631	
	SM 2540 D-97	TSS	6	I	mg/L	P325669	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P325468	
1898181	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P325058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P325390	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325351	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P325212	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P325359	
1898185	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325043	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LITTLE LAKE WILSON

Collection Date/Time: 05/09/2017 10:20

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898194	EPA 8321B	Sucralose**	0.49		ug/L	P324900	

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898194	USGS O-2060-01	2,4-D	0.0024	I	ug/L	P324958	
		Diuron	8.8E-04	I	ug/L	P324958	
		Fenuron	0.028		ug/L	P324958	
		Imidacloprid	0.0061		ug/L	P324958	MS
		Bentazon	0.030		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**	0.0076		ug/L	P324958	
		Triclopyr**	0.0040	U	ug/L	P324958	
		Primidone**	0.026		ug/L	P324958	
		Fluridone**	0.0070		ug/L	P324958	

Sample Location: ANN PARKER

Collection Date/Time: 05/09/2017 11:30

Field ID: G1SW0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898178	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P325039	
	EPA 300.0 Rev. 2.1	Chloride	37		mg Cl/L	P325827	
		Sulfate	5.3		mg SO4/L	P325831	
	SM 2120 B	Color (true)	33	A	PCU	P325028	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P325520	
	SM 2540 C-97	TDS	117		mg/L	P325631	
	SM 2540 D-97	TSS	4	I	mg/L	P325669	
	SM 4500 F-C-97	Fluoride	0.095	I	mg F/L	P325809	RPD
1898182	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P325390	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325351	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P325212	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P325359	
1898186	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325043	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LAKE HARVEY

Collection Date/Time: 05/09/2017 12:30

Field ID: G1SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898179	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P325039	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P325827	
		Sulfate	3.2		mg SO4/L	P325831	
	SM 2120 B	Color (true)	53		PCU	P325028	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P325520	
	SM 2540 C-97	TDS	106		mg/L	P325631	
	SM 2540 D-97	TSS	3	I	mg/L	P325669	

Field ID: G1SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898179	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P325809	RPD
1898183	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325058	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P325390	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325351	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P325212	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P325359	
1898187	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325043	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325039

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325827

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325831

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325058

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325390

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325351

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325212

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325212

Component	Result	Code	Units
Total-P	0.002	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 365.1 Rev. 2.0 dissolved
Batch ID: P325043

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: P325028

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325466

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

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

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

Reference Method: SM 2540 C-97
Batch ID: P325631

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325669

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P325468

Component	Result	Code	Units
Fluoride	0.035	U	mg F/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: P325359

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
MCP	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: P325827

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325831

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325058

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325390

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325351

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	101		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 365.1 Rev. 2.0 dissolved
Batch ID: P325043

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

Reference Method: SM 2320 B-97
Batch ID: P325466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

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: P325468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

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: P325359

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.2		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
MCPP	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: P325827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898282	Chloride	97.0		P	90 - 110
1898283	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325831

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898282	Sulfate	95.4		P	90 - 110
1898283	Sulfate	94.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898030	Kjeldahl Nitrogen	93.4	95.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898180	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P325212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898243	Total-P	98.6	97.4	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 365.1 Rev. 2.0 dissolved
 Batch ID: P325043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897966	O-Phosphate-P	96.2	98.7	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

Reference Method: SM 4500 F-C-97
 Batch ID: P325468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897159	Fluoride	97.9	99.1	P/P	91 - 105

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: P325359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897954	Organic Carbon	89.0	92.2	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

Quality Assurance Report Matrix Spike Accuracy

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

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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: P325039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898044	Turbidity	2.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P325827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898282	Chloride	0.0430	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P325831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898282	Sulfate	0.102	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898045	Ammonia-N	0.0633	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898030	Kjeldahl Nitrogen	1.37	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898180	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898243	Total-P	1.06	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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897966	O-Phosphate-P	2.39	Spike	P	0 - 20

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: P325028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898178	Color (true)	13.3	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897159	Total Alkalinity	0.405	Sample	P	0 - 4.8

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

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P325631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898053	TDS	3.97	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897159	Fluoride	1.02	Spike	P	0 - 3.0

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: P325359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897954	Organic Carbon	3.19	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
1897361	MCPP	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

Quality Assurance Report Surrogates

Lab Sample ID: 1898194
Field Sample ID: G1SW0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	75.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	73.3	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	80.3	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	77.8	P	30 - 160
USGS O-2060-01	Diuron-d6	67.0	P	30 - 150
USGS O-2060-01	Primidone-d5	76.3	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A76330
Included Lab Sample IDs: 1898176, 1898177, 1898178, 1898179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	99.4	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76333
Included Lab Sample IDs: 1898184, 1898185, 1898186, 1898187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76334
Included Lab Sample IDs: 1898176, 1898177, 1898178, 1898179

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76336
Included Lab Sample IDs: 1898180, 1898181, 1898182, 1898183

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76427
Included Lab Sample IDs: 1898180, 1898181, 1898182, 1898183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	100	P/P	90 - 110
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76447
Included Lab Sample IDs: 1898180, 1898181, 1898182, 1898183

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76447

Included Lab Sample IDs: 1898180, 1898181, 1898182, 1898183

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

Reference Method: SM 5310 B-00

Run ID: A76450

Included Lab Sample IDs: 1898180, 1898181, 1898182, 1898183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.8	93.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76498

Included Lab Sample IDs: 1898176, 1898177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76498

Included Lab Sample IDs: 1898176, 1898177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76520

Included Lab Sample IDs: 1898180, 1898181, 1898182, 1898183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.7	P/P	90 - 110
Kjeldahl Nitrogen	99.7	97.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76528

Included Lab Sample IDs: 1898178, 1898179

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

Reference Method: EPA 8321B

Run ID: A76559

Included Lab Sample IDs: 1898194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	64.0	93.4	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A76569

Included Lab Sample IDs: 1898194

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

Reference Method: USGS O-2060-01

Run ID: A76569

Included Lab Sample IDs: 1898194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	100	98.4	P/P	50 - 150
Acetaminophen	88.0	95.6	P/P	60 - 150
Bentazon	106	101	P/P	50 - 150
Carbamazepine	103	111	P/P	60 - 150
Diuron	98.8	103	P/P	60 - 150
Fenuron	101	107	P/P	60 - 150
Fluridone	101	111	P/P	60 - 150
Imidacloprid	99.2	95.6	P/P	60 - 150
Linuron	93.2	100	P/P	60 - 150
MCP	96.4	92.8	P/P	50 - 150
Primidone	80.8	97.6	P/P	60 - 150
Triclopyr	104	100	P/P	50 - 150

Reference Method: SM 4500 F-C-97

Run ID: A76661

Included Lab Sample IDs: 1898178, 1898179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	101	96.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76672

Included Lab Sample IDs: 1898176, 1898177, 1898178, 1898179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	104	P/P	90 - 110
Sulfate	97.9	95.7	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				2.79	
EPA 300.0 Rev. 2.1	Chloride	101	97.0 98.0		0.0430	
	Sulfate	97.3	95.4 94.6		0.102	
EPA 350.1 Rev. 2.0	Ammonia-N	104				0.0633
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.2	93.4 95.0			1.37
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	102 102			0.0
EPA 365.1 Rev. 2.0	Total-P	101	98.6 97.4			1.06
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	95.9 97.1			1.16
	O-Phosphate-P	101	96.2 98.7			2.39
EPA 8321B	Sucralose	89.1	91.7 96.9			5.43
SM 2120 B	Color (true)				13.3	
SM 2320 B-97	Total Alkalinity	103			0.405	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 2320 B-97	Total Alkalinity	104				0.0020	
SM 2540 C-97	TDS					3.97	
SM 4500 F-C-97	Fluoride	94.0	97.9	99.1			1.02
	Fluoride	99.9	93.8	98.5			4.09
SM 5310 B-00	Organic Carbon	92.2	89.0	92.2			3.19
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
	MCPP	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	1898176, 1898177, 1898178, 1898179
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1898176, 1898177, 1898178, 1898179
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1898176, 1898177, 1898178, 1898179
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1898180, 1898181, 1898182, 1898183
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1898180, 1898181, 1898182, 1898183
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1898180, 1898181, 1898182, 1898183
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1898180, 1898181, 1898182, 1898183
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1898184, 1898185, 1898186, 1898187
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1898194
SM 2120 B / E31780	True Color measured at 450 nm	1898176, 1898177, 1898178, 1898179
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1898176, 1898177, 1898178, 1898179
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1898176, 1898177, 1898178, 1898179
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1898176, 1898177, 1898178, 1898179
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1898176, 1898177, 1898178, 1898179
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1898180, 1898181, 1898182, 1898183
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1898194
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1898194

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	05/10/2017			05/10/2017 15:36	Sima Feizi	1898176, 1898177, 1898178, 1898179
EPA 300.0 Rev. 2.1	05/10/2017			05/25/2017	Ping Hua	1898176, 1898177, 1898178, 1898179
EPA 350.1 Rev. 2.0	05/10/2017			05/10/2017	Julie Michelle Frank	1898180, 1898181, 1898182, 1898183
EPA 351.2 Rev. 2.0	05/10/2017	05/17/2017	Adrian Shelby	05/18/2017	Joseph Suarez	1898180, 1898181, 1898182, 1898183
EPA 353.2 Rev. 2.0	05/10/2017			05/16/2017	Beverly Y. Sanders	1898180, 1898181, 1898182, 1898183
EPA 365.1 Rev. 2.0	05/10/2017	05/12/2017	Vijayalakshmi Reddy	05/15/2017	Lipi Saha	1898180, 1898181, 1898182, 1898183
EPA 365.1 Rev. 2.0 dissolved	05/10/2017			05/10/2017 15:37	Anthony C. Onicha	1898184
	05/10/2017			05/10/2017 15:38	Anthony C. Onicha	1898185
	05/10/2017			05/10/2017 15:39	Anthony C. Onicha	1898186
	05/10/2017			05/10/2017 15:40	Anthony C. Onicha	1898187
EPA 8321B	05/10/2017	05/18/2017	Mohammad Ghaffari	05/18/2017	Mohammad Ghaffari	1898194
SM 2120 B	05/10/2017			05/10/2017 15:19	Julia Storbeck	1898178
	05/10/2017			05/10/2017 15:20	Julia Storbeck	1898176
	05/10/2017			05/10/2017 15:21	Julia Storbeck	1898177
	05/10/2017			05/10/2017 15:22	Julia Storbeck	1898179
SM 2320 B-97	05/10/2017			05/17/2017	Dale L. Simmons	1898176
	05/10/2017			05/18/2017	Dale L. Simmons	1898177, 1898178
	05/10/2017			05/19/2017	Dale L. Simmons	1898179
SM 2540 C-97	05/10/2017			05/12/2017	Yijie Li	1898176, 1898177, 1898178, 1898179
SM 2540 D-97	05/10/2017			05/12/2017	Yijie Li	1898176, 1898177, 1898178, 1898179
SM 4500 F-C-97	05/10/2017			05/17/2017	Dale L. Simmons	1898176
	05/10/2017			05/18/2017	Dale L. Simmons	1898177
	05/10/2017			05/24/2017	Dale L. Simmons	1898178, 1898179
SM 5310 B-00	05/10/2017			05/15/2017	Christopher Armour	1898180, 1898181, 1898182, 1898183
USGS O-2060-01	05/10/2017	05/15/2017	Hoor Shaik	05/20/2017	Juyoung Kim	1898194