

Chemical Analysis Report

NW-DIST-2017-12-01-01

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

Event Description: **Shoal River/Yellow WBID 160A 160B 30 BLANK DUP**
Request ID: **RQ-2017-11-27-13**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-DEC-2017 10:25

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

NON-CONFORMANCE REPORT INCLUDED

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: Yellow River @ Milligan Park

Collection Date/Time: 11/29/2017 11:30

Field ID: G4NW0260

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1950024	EPA 8321B	Sucralose**	0.091		ug/L	P336172	
	USGS O-2060-01	2,4-D	0.0060	I	ug/L	P336034	
		Diuron	8.0E-04	U	ug/L	P336034	
		Fenuron	0.0090	I	ug/L	P336034	
		Imidacloprid	0.0022	I	ug/L	P336034	MS
		Bentazon	8.0E-04	U	ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.0080	U	ug/L	P336034	
		MCP	0.0020	U	ug/L	P336034	
		Carbamazepine**	4.0E-04	U	ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.0040	U	ug/L	P336034	
		Fluridone**	4.0E-04	U	ug/L	P336034	

Sample Location: Shoal River @ Bill Dugger Park SR-85

Collection Date/Time: 11/29/2017 12:00

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1950002	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P336258	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P336482	
		Sulfate	1.2		mg SO4/L	P336485	
	SM 2120 B	Color (true)	27		PCU	P336170	
	SM 2320 B-97	Total Alkalinity	4.1		mg CaCO3/L	P336618	
	SM 2540 C-97	TDS	17	I	mg/L	P336674	
	SM 2540 D-97	TSS	3	I	mg/L	P336783	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336621	RPD
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P336808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.082	I	mg N/L	P336642	
1950004	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P336386	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P336532	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P336546	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	UQ	mg P/L	P336224	
	dissolved						

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Shoal River

Collection Date/Time: 11/29/2017 12:45

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1950003	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P336258	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P336482	
		Sulfate	1.1		mg SO4/L	P336485	
	SM 2120 B	Color (true)	25		PCU	P336170	

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1950003	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P336618	
	SM 2540 C-97	TDS	16	I	mg/L	P336674	
	SM 2540 D-97	TSS	3	I	mg/L	P336783	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P336621	RPD
1950005	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P336808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P336643	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P336386	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P336532	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P336546	
1950007	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P336224	

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 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Shoal River

Collection Date/Time: 11/29/2017 12:45

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1950025	EPA 8321B	Sucralose**	0.10		ug/L	P336172	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P336034	
		Diuron	8.0E-04	U	ug/L	P336034	
		Fenuron	0.0080	U	ug/L	P336034	
		Imidacloprid	0.0034		ug/L	P336034	MS
		Bentazon	8.0E-04	U	ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.0080	U	ug/L	P336034	
		MCP	0.0020	U	ug/L	P336034	
		Carbamazepine**	4.0E-04	U	ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.0040	U	ug/L	P336034	
		Fluridone**	4.0E-04	U	ug/L	P336034	

Non-Conformance Report

NCR ID: 6799

Event(s)

NW-DIST-2017-12-01-01
 NW-DIST-2017-12-01-01
 NW-DIST-2017-12-01-01
 NW-DIST-2017-12-01-01
 NW-DIST-2017-12-01-01

Job(s)

TLH-2017-12-01-29
 TLH-2017-12-01-30
 TLH-2017-12-01-31
 TLH-2017-12-01-32
 TLH-2017-12-01-35

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one day late by common carrier.

Resolution: Laboratory supervisors were notified by email. Samples will be qualified as appropriate.

Authorized by/Date: Kerry Tate 12/7/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry Colin Wright (850) 245-8085
Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336258

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336482

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336485

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336808

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336642

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336643

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336386

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336532

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336224

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

Reference Method: EPA 8321B
Batch ID: P336172

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P336170

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P336618

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

Reference Method: SM 2540 C-97
Batch ID: P336674

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336783

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P336621

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336546

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

Reference Method: USGS O-2060-01
Batch ID: P336034

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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P336034

Component	Result	Code	Units
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
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: P336482

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336485

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336808

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336642

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336643

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: P336386

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P336532

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: P336224

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

Reference Method: EPA 8321B
 Batch ID: P336172

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

Reference Method: SM 2320 B-97
 Batch ID: P336618

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

Reference Method: SM 4500 F-C-97
 Batch ID: P336621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.7		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P336546

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P336034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	97.6		P	40 - 150
Acetaminophen	115		P	30 - 150
Bentazon	75.8		P	30 - 150
Carbamazepine	109		P	40 - 150
Diuron	106		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	105		P	40 - 150
Imidacloprid	98.3		P	40 - 160
Linuron	100		P	40 - 150
MCPP	92.1		P	40 - 150
Primidone	93.9		P	40 - 150
Triclopyr	89.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1950021	Chloride	97.8		P	90 - 110
1950053	Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1950021	Sulfate	98.8		P	90 - 110
1950053	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949962	Ammonia-N	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1950005	Kjeldahl Nitrogen	109	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949961	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949961	Total-P	99.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336224

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1950007	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P336172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1950024	Sucralose	78.0	81.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P336621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1950090	Fluoride	105	100	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P336546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949962	Organic Carbon	102	103	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P336034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948788	2,4-D	70.0	71.5	P/P	40 - 150
1948788	Acetaminophen	122	125	P/P	30 - 150
1948788	Bentazon	45.1	44.6	P/P	30 - 150
1948788	Carbamazepine	90.4	93.1	P/P	40 - 150
1948788	Diuron	85.6	88.0	P/P	40 - 150
1948788	Fenuron	66.5	74.1	P/P	40 - 150
1948788	Fluridone	89.7	94.3	P/P	40 - 150
1948788	Imidacloprid	164	174	F/F	40 - 160
1948788	Linuron	99.0	99.5	P/P	40 - 150
1948788	MCCP	59.4	58.1	P/P	40 - 150
1948788	Primidone	82.9	82.9	P/P	40 - 150
1948788	Triclopyr	61.3	57.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P336258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950002	Turbidity	0.404	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P336482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950021	Chloride	0.782	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P336485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950021	Sulfate	0.734	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P336808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949962	Ammonia-N	0.788	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949963	Kjeldahl Nitrogen	1.46	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950005	Kjeldahl Nitrogen	1.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949961	NO2NO3-N	3.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949961	Total-P	0.396	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950007	O-Phosphate-P	1.29	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P336172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950024	Sucralose	3.59	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P336170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949951	Color (true)	14.9	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950090	Total Alkalinity	1.29	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P336674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950021	TDS	5.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P336621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1950090	Fluoride	3.37	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P336546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949962	Organic Carbon	1.03	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P336034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948788	2,4-D	2.26	Spike	P	0 - 30
1948788	Acetaminophen	2.70	Spike	P	0 - 30
1948788	Bentazon	1.00	Spike	P	0 - 30
1948788	Carbamazepine	2.94	Spike	P	0 - 30
1948788	Diuron	2.72	Spike	P	0 - 30
1948788	Fenuron	8.74	Spike	P	0 - 30
1948788	Fluridone	5.01	Spike	P	0 - 30
1948788	Imidacloprid	5.83	Spike	P	0 - 30
1948788	Linuron	0.427	Spike	P	0 - 30
1948788	MCP	2.11	Spike	P	0 - 30
1948788	Primidone	0.0415	Spike	P	0 - 30
1948788	Triclopyr	6.48	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: 1950024
 Field Sample ID: G4NW0260

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	99.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	108	P	30 - 160
EPA 8321B	Diuron-d6	96.6	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	80.3	P	40 - 160
USGS O-2060-01	2,4-D-d3	70.5	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1950024
Field Sample ID: G4NW0260

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Acetaminophen-d4	99.2	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	108	P	30 - 160
USGS O-2060-01	Diuron-d6	96.6	P	30 - 160
USGS O-2060-01	Primidone-d5	101	P	30 - 160
USGS O-2060-01	Sucralose-d6	80.3	P	40 - 160

Lab Sample ID: 1950025
Field Sample ID: G4NW0410

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	109	P	30 - 160
EPA 8321B	Carbamazepine-d10	121	P	30 - 160
EPA 8321B	Diuron-d6	114	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	91.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	79.4	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	109	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	121	P	30 - 160
USGS O-2060-01	Diuron-d6	114	P	30 - 160
USGS O-2060-01	Primidone-d5	108	P	30 - 160
USGS O-2060-01	Sucralose-d6	91.6	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A80628
Included Lab Sample IDs: 1950002, 1950003

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80643
Included Lab Sample IDs: 1950006, 1950007

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80658
Included Lab Sample IDs: 1950002, 1950003

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

Reference Method: USGS O-2060-01
Run ID: A80693
Included Lab Sample IDs: 1950024, 1950025

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: A80693

Included Lab Sample IDs: 1950024, 1950025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.5	91.6	P/P	50 - 150
Acetaminophen	115	111	P/P	60 - 150
Bentazon	100	98.3	P/P	50 - 150
Carbamazepine	113	115	P/P	60 - 150
Diuron	104	110	P/P	60 - 150
Fenuron	112	114	P/P	60 - 150
Fluridone	116	119	P/P	60 - 160
Imidacloprid	103	102	P/P	60 - 150
Linuron	115	120	P/P	60 - 150
MCPP	98.8	92.2	P/P	50 - 150
Primidone	114	121	P/P	60 - 150
Triclopyr	90.6	83.9	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80702

Included Lab Sample IDs: 1950004, 1950005

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80735

Included Lab Sample IDs: 1950002, 1950003

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

Reference Method: EPA 8321B

Run ID: A80747

Included Lab Sample IDs: 1950024, 1950025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	103	114	P/P	60 - 150
Sucralose	114	105	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A80752

Included Lab Sample IDs: 1950004, 1950005

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	98.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A80770

Included Lab Sample IDs: 1950002, 1950003

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A80770

Included Lab Sample IDs: 1950002, 1950003

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80815

Included Lab Sample IDs: 1950004

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80834

Included Lab Sample IDs: 1950004, 1950005

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80842

Included Lab Sample IDs: 1950004, 1950005

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80917

Included Lab Sample IDs: 1950005

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.7	97.6	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.404	
EPA 300.0 Rev. 2.1	Chloride	98.5	97.8 96.9		0.782	
	Sulfate	99.8	98.8 98.7		0.734	
EPA 350.1 Rev. 2.0	Ammonia-N	106	105 104			0.788
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106				1.46
	Kjeldahl Nitrogen	103	109 108			1.26
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102			3.20
EPA 365.1 Rev. 2.0	Total-P	102	99.8 99.4			0.396
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	100 102			1.29
EPA 8321B	Sucralose	114	78.0 81.0			3.59

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 2120 B	Color (true)				14.9	
SM 2320 B-97	Total Alkalinity	103			1.29	
SM 2540 C-97	TDS				5.76	
SM 4500 F-C-97	Fluoride	99.7	105	100		3.37
SM 5310 B-00	Organic Carbon	98.8	102	103		1.03
USGS O-2060-01	2,4-D	97.6	70.0	71.5		2.26
	Acetaminophen	115	125	122		2.70
	Bentazon	75.8	45.1	44.6		1.00
	Carbamazepine	109	93.1	90.4		2.94
	Diuron	106	88.0	85.6		2.72
	Fenuron	109	74.1	66.5		8.74
	Fluridone	105	94.3	89.7		5.01
	Imidacloprid	98.3	174	164		5.83
	Linuron	100	99.5	99.0		0.427
	MCP	92.1	59.4	58.1		2.11
	Primidone	93.9	82.9	82.9		0.0415
	Triclopyr	89.1	61.3	57.4		6.48

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1950002, 1950003
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1950002, 1950003
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1950002, 1950003
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1950004, 1950005
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1950004, 1950005
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1950004, 1950005
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1950004, 1950005
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1950006, 1950007
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1950024, 1950025
SM 2120 B / E31780	True Color measured at 450 nm	1950002, 1950003
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1950002, 1950003
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1950002, 1950003
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1950002, 1950003
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1950002, 1950003
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1950004, 1950005
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1950024, 1950025
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1950024, 1950025

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	12/01/2017			12/01/2017 11:58	Tanya Welborn	1950003
	12/01/2017			12/01/2017 12:00	Tanya Welborn	1950002
EPA 300.0 Rev. 2.1	12/01/2017			12/06/2017	Julia Storbeck	1950002, 1950003
EPA 350.1 Rev. 2.0	12/01/2017			12/11/2017	Sofia Elnemr	1950004, 1950005
EPA 351.2 Rev. 2.0	12/01/2017	12/08/2017	Adrian Shelby	12/11/2017	Joseph Suarez	1950004, 1950005
EPA 353.2 Rev. 2.0	12/01/2017			12/05/2017	Lauren Bottorf	1950004, 1950005
EPA 365.1 Rev. 2.0	12/01/2017	12/07/2017	Sima Feizi	12/11/2017	Lipi Saha	1950004, 1950005
EPA 365.1 Rev. 2.0 dissolved	12/01/2017			12/01/2017 12:57	Anthony C. Onicha	1950007
	12/01/2017			12/01/2017 12:59	Anthony C. Onicha	1950006
EPA 8321B	12/01/2017	12/06/2017	Juyoung Kim	12/06/2017	Juyoung Kim	1950024
	12/01/2017	12/06/2017	Juyoung Kim	12/07/2017	Juyoung Kim	1950025
SM 2120 B	12/01/2017			12/01/2017 11:59	Tanya Welborn	1950003
	12/01/2017			12/01/2017 12:00	Tanya Welborn	1950002
SM 2320 B-97	12/01/2017			12/07/2017	Dale L. Simmons	1950002, 1950003
SM 2540 C-97	12/01/2017			12/06/2017	Yijie Li	1950002, 1950003
SM 2540 D-97	12/01/2017			12/06/2017	Yijie Li	1950002, 1950003
SM 4500 F-C-97	12/01/2017			12/07/2017	Dale L. Simmons	1950002, 1950003
SM 5310 B-00	12/01/2017			12/06/2017	Ping Hua	1950004, 1950005
USGS O-2060-01	12/01/2017	12/04/2017	Hoor Shaik	12/05/2017	Julie Michelle Frank	1950024, 1950025
	12/01/2017	12/04/2017	Hoor Shaik	12/06/2017	Julie Michelle Frank	1950024, 1950025