

Chemical Analysis Report

NW-DIST-2017-10-04-02

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**

Request ID: **RQ-2017-10-02-38**

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: 23-OCT-2017 15:14

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Shoal River @ Bill Dugger Park SR 85

Collection Date/Time: 10/03/2017 11:05

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933960	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P332738	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P332941	
		Sulfate	1.2		mg SO4/L	P332944	
	SM 2120 B	Color (true)	38	A	PCU	P332751	
	SM 2320 B-97	Total Alkalinity	4.4		mg CaCO3/L	P333072	
	SM 2540 C-97	TDS	38		mg/L	P333045	
	SM 2540 D-97	TSS	7	I	mg/L	P333091	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333076	
1933964	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P333302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P332978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P333054	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P333010	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P333153	
1933968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332731	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Shoal River @ Bill Dugger Park SR 85

Collection Date/Time: 10/03/2017 11:10

Field ID: G4NW0023DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933961	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P332738	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P332941	
		Sulfate	1.2		mg SO4/L	P332944	
	SM 2120 B	Color (true)	37		PCU	P332751	
	SM 2320 B-97	Total Alkalinity	4.7		mg CaCO3/L	P333072	
	SM 2540 C-97	TDS	32		mg/L	P333045	
	SM 2540 D-97	TSS	7	I	mg/L	P333091	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333076	
1933965	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P333302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P332978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P333054	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P333010	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P333153	
1933969	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332731	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Shoal River @ Bill Dugger Park SR 85

Collection Date/Time: 10/03/2017 11:15

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933962	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P332738	

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933962	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P332941	
		Sulfate	0.20	U	mg SO4/L	P332944	
	SM 2120 B	Color (true)	2.5	U	PCU	P332751	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333072	
	SM 2540 C-97	TDS	15	U	mg/L	P333041	
	SM 2540 D-97	TSS	2	U	mg/L	P333087	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333076	
1933966	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P333302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P332978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333054	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P333010	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P333153	
1933970	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332731	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Shoal River below Titi Creek

Collection Date/Time: 10/03/2017 12:00

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933963	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P332738	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P332941	
		Sulfate	1.2		mg SO4/L	P332944	
	SM 2120 B	Color (true)	37		PCU	P332751	
	SM 2320 B-97	Total Alkalinity	4.5		mg CaCO3/L	P333073	
	SM 2540 C-97	TDS	29		mg/L	P333045	
	SM 2540 D-97	TSS	7	I	mg/L	P333091	
1933967	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333077	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P333302	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P332978	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P333054	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P333011	
1933971	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P333153	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332731	

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: Shoal River below Titi Creek

Collection Date/Time: 10/03/2017 12:00

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933989	EPA 8321B	Sucralose**	0.097		ug/L	P332642	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P332643	
		Diuron	8.0E-04	U	ug/L	P332643	
		Fenuron	0.0080	U	ug/L	P332643	

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933989	USGS O-2060-01	Imidacloprid	0.0051		ug/L	P332643	MS
		Bentazon	8.0E-04	U	ug/L	P332643	MS
		Linuron	0.0040	U	ug/L	P332643	
		Acetaminophen**	0.0080	U	ug/L	P332643	RPD
		MCP	0.0020	U	ug/L	P332643	
		Carbamazepine**	4.6E-04	I	ug/L	P332643	
		Triclopyr**	0.0040	U	ug/L	P332643	
		Primidone**	0.0040	U	ug/L	P332643	
		Fluridone**	4.0E-04	U	ug/L	P332643	

Sample Location: Yellow River

Collection Date/Time: 10/03/2017 13:15

Field ID: G4NW0260

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933990	EPA 8321B	Sucralose**	0.077		ug/L	P332642	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P332643	
		Diuron	8.0E-04	U	ug/L	P332643	
		Fenuron	0.0080	U	ug/L	P332643	
		Imidacloprid	0.0036		ug/L	P332643	MS
		Bentazon	8.0E-04	U	ug/L	P332643	MS
		Linuron	0.0040	U	ug/L	P332643	
		Acetaminophen**	0.0080	U	ug/L	P332643	RPD
		MCP	0.0020	U	ug/L	P332643	
		Carbamazepine**	4.0E-04	U	ug/L	P332643	
		Triclopyr**	0.0040	U	ug/L	P332643	
		Primidone**	0.0040	U	ug/L	P332643	
		Fluridone**	4.0E-04	U	ug/L	P332643	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P332738

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P332941

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P332944

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333302

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332978

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333054

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333010

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333011

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332731

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

Reference Method: EPA 8321B
Batch ID: P332642

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P332751

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333072

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P333073

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P333041

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P333045

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333087

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333091

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333076

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P333077

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P333153

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

Reference Method: USGS O-2060-01
Batch ID: P332643

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: P332643

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: P332941

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332978

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333054

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332731

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

Reference Method: EPA 8321B
Batch ID: P332642

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	109		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P333072

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

Reference Method: SM 2320 B-97
Batch ID: P333073

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

Reference Method: SM 4500 F-C-97
Batch ID: P333076

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P333077

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P333153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P332643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.1		P	40 - 150
Acetaminophen	130		P	30 - 150
Bentazon	38.8		P	30 - 150
Carbamazepine	135		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P332643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	123		P	40 - 150
Fenuron	121		P	40 - 150
Fluridone	123		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	122		P	40 - 150
MCPP	79.5		P	40 - 150
Primidone	128		P	40 - 150
Triclopyr	79.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933872	Chloride	103		P	90 - 110
1933943	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933872	Sulfate	99.2		P	90 - 110
1933943	Sulfate	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933964	Ammonia-N	97.5	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933964	Kjeldahl Nitrogen	96.2	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933967	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934037	Total-P	90.7	95.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P332731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933912	O-Phosphate-P	94.6	97.1	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P332642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933717	Sucralose	102	107	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P333076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933836	Fluoride	98.4	99.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P333077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934204	Fluoride	97.0	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P333153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933885	Organic Carbon	91.6	91.6	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P332643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933900	2,4-D	60.6	62.0	P/P	40 - 150
1933900	Acetaminophen	65.7	94.0	P/P	30 - 150
1933900	Bentazon	22.4	22.5	F/F	30 - 150
1933900	Carbamazepine	122	125	P/P	40 - 150
1933900	Diuron	100	102	P/P	40 - 150
1933900	Fenuron	103	106	P/P	40 - 150
1933900	Fluridone	113	117	P/P	40 - 150
1933900	Imidacloprid	218	232	F/F	40 - 160
1933900	Linuron	118	114	P/P	40 - 150
1933900	MCP	56.1	61.0	P/P	40 - 150
1933900	Primidone	131	140	P/P	40 - 150
1933900	Triclopyr	56.7	57.1	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P332738

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933943	Turbidity	7.55	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933943	Chloride	0.904	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933943	Sulfate	2.20	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933964	Ammonia-N	1.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933964	Kjeldahl Nitrogen	1.65	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933967	NO2NO3-N	0.803	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933923	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934037	Total-P	5.14	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933912	O-Phosphate-P	2.41	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P332642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933717	Sucralose	4.20	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P332751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933960	Color (true)	1.66	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933836	Total Alkalinity	0.376	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P333073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934204	Total Alkalinity	0.311	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P333041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933594	TDS	6.70	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P333045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933884	TDS	5.77	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933836	Fluoride	0.482	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P333077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934204	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P333153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933885	Organic Carbon	0.0351	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P332643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933900	2,4-D	2.05	Spike	P	0 - 30
1933900	Acetaminophen	35.4	Spike	F	0 - 30
1933900	Bentazon	0.267	Spike	P	0 - 30
1933900	Carbamazepine	2.54	Spike	P	0 - 30
1933900	Diuron	1.62	Spike	P	0 - 30
1933900	Fenuron	2.53	Spike	P	0 - 30
1933900	Fluridone	3.12	Spike	P	0 - 30
1933900	Imidacloprid	6.49	Spike	P	0 - 30
1933900	Linuron	3.05	Spike	P	0 - 30
1933900	MCPP	8.37	Spike	P	0 - 30
1933900	Primidone	6.98	Spike	P	0 - 30
1933900	Triclopyr	0.773	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: 1933989
Field Sample ID: G4NW0410

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	70.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	132	P	30 - 160
EPA 8321B	Diuron-d6	99.5	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Sucralose-d6	88.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	63.5	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	70.6	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	132	P	30 - 160
USGS O-2060-01	Diuron-d6	99.5	P	30 - 160
USGS O-2060-01	Primidone-d5	120	P	30 - 160
USGS O-2060-01	Sucralose-d6	88.4	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1933990
Field Sample ID: G4NW0260

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	79.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	124	P	30 - 160
EPA 8321B	Diuron-d6	82.6	P	30 - 160
EPA 8321B	Primidone-d5	121	P	30 - 160
EPA 8321B	Sucralose-d6	91.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	61.9	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	79.5	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	124	P	30 - 160
USGS O-2060-01	Diuron-d6	82.6	P	30 - 160
USGS O-2060-01	Primidone-d5	121	P	30 - 160
USGS O-2060-01	Sucralose-d6	91.0	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79337
Included Lab Sample IDs: 1933968, 1933969, 1933970, 1933971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	97.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A79338
Included Lab Sample IDs: 1933960, 1933961, 1933962, 1933963

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

Reference Method: SM 2120 B
Run ID: A79343
Included Lab Sample IDs: 1933960, 1933961, 1933962, 1933963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	106	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A79401
Included Lab Sample IDs: 1933960, 1933961, 1933962, 1933963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	108	106	P/P	90 - 110
Sulfate	104	102	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A79451
Included Lab Sample IDs: 1933989, 1933990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	100	103	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79454

Included Lab Sample IDs: 1933964, 1933965, 1933966, 1933967

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79460

Included Lab Sample IDs: 1933964, 1933965, 1933966, 1933967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A79462

Included Lab Sample IDs: 1933960, 1933961, 1933962, 1933963

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

Reference Method: SM 4500 F-C-97

Run ID: A79462

Included Lab Sample IDs: 1933960, 1933961, 1933962, 1933963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.1	P/P	90 - 110
Fluoride	99.1	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79465

Included Lab Sample IDs: 1933964, 1933965, 1933966, 1933967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	94.2	P/P	90 - 110
Kjeldahl Nitrogen	96.3	100	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A79478

Included Lab Sample IDs: 1933989, 1933990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	100	88.7	P/P	50 - 150
2,4-D	88.7	97.1	P/P	50 - 150
Acetaminophen	87.8	87.5	P/P	60 - 150
Acetaminophen	87.8	87.8	P/P	60 - 150
Bentazon	85.0	87.0	P/P	50 - 150
Bentazon	87.0	88.6	P/P	50 - 150
Carbamazepine	89.4	94.5	P/P	60 - 150
Carbamazepine	94.5	95.9	P/P	60 - 150
Diuron	92.0	98.5	P/P	60 - 150
Diuron	98.5	94.2	P/P	60 - 150
Fenuron	92.2	93.7	P/P	60 - 150
Fenuron	93.0	92.2	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79478

Included Lab Sample IDs: 1933989, 1933990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	102	107	P/P	60 - 160
Fluridone	107	107	P/P	60 - 160
Imidacloprid	92.4	88.6	P/P	60 - 150
Imidacloprid	94.4	92.4	P/P	60 - 150
Linuron	94.3	101	P/P	60 - 150
Linuron	96.3	94.3	P/P	60 - 150
MCP	100	97.0	P/P	50 - 150
MCP	97.0	100	P/P	50 - 150
Primidone	90.0	99.6	P/P	60 - 150
Primidone	99.6	107	P/P	60 - 150
Triclopyr	105	105	P/P	50 - 150
Triclopyr	105	106	P/P	50 - 150

Reference Method: SM 5310 B-00

Run ID: A79484

Included Lab Sample IDs: 1933964, 1933965, 1933966, 1933967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.6	96.4	P/P	90 - 110
Organic Carbon	96.4	96.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79523

Included Lab Sample IDs: 1933964, 1933965, 1933966, 1933967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110
Ammonia-N	99.9	100	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				7.55	
EPA 300.0 Rev. 2.1	Chloride	103	103 103		0.904	
	Sulfate	99.3	98.8 99.2		2.20	
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	97.5 99.4			1.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3	96.2 98.1			1.65
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	106	103			0.803
EPA 365.1 Rev. 2.0	Total-P	94.5				1.02
	Total-P	96.6	90.7 95.8			5.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	94.6 97.1			2.41
EPA 8321B	Sucralose	109	102 107			4.20
SM 2120 B	Color (true)				1.66	
SM 2320 B-97	Total Alkalinity	102			0.376	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 2320 B-97	Total Alkalinity	102			0.311	
SM 2540 C-97	TDS				6.70	
	TDS				5.77	
SM 4500 F-C-97	Fluoride	98.8	98.4	99.0		0.482
	Fluoride	96.9	97.0	97.8		0.470
SM 5310 B-00	Organic Carbon	95.5	91.6	91.6		0.0351
USGS O-2060-01	2,4-D	78.1	60.6	62.0		2.05
	Acetaminophen	130	65.7	94.0		35.4
	Bentazon	38.8	22.4	22.5		0.267
	Carbamazepine	135	122	125		2.54
	Diuron	123	100	102		1.62
	Fenuron	121	103	106		2.53
	Fluridone	123	113	117		3.12
	Imidacloprid	115	218	232		6.49
	Linuron	122	118	114		3.05
	MCP	79.5	56.1	61.0		8.37
	Primidone	128	131	140		6.98
	Triclopyr	79.6	56.7	57.1		0.773

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1933960, 1933961, 1933962, 1933963
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1933960, 1933961, 1933962, 1933963
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1933960, 1933961, 1933962, 1933963
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1933964, 1933965, 1933966, 1933967
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1933964, 1933965, 1933966, 1933967
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1933964, 1933965, 1933966, 1933967
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1933964, 1933965, 1933966, 1933967
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1933968, 1933969, 1933970, 1933971
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1933989, 1933990
SM 2120 B / E31780	True Color measured at 450 nm	1933960, 1933961, 1933962, 1933963
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1933960, 1933961, 1933962, 1933963
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1933960, 1933961, 1933962, 1933963
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1933960, 1933961, 1933962, 1933963
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1933960, 1933961, 1933962, 1933963
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1933964, 1933965, 1933966, 1933967
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1933989, 1933990
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1933989, 1933990

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	10/04/2017			10/04/2017 16:16	DeAsia Armster	1933960, 1933961, 1933962, 1933963
EPA 300.0 Rev. 2.1	10/04/2017			10/07/2017	Julia Storbeck	1933960, 1933961, 1933962, 1933963
EPA 350.1 Rev. 2.0	10/04/2017			10/12/2017	Sofia Elnemr	1933964, 1933965, 1933966, 1933967
EPA 351.2 Rev. 2.0	10/04/2017	10/09/2017	Adrian Shelby	10/10/2017	Virginia P. Brown	1933964, 1933965, 1933966, 1933967
EPA 353.2 Rev. 2.0	10/04/2017			10/10/2017	Beverly Y. Sanders	1933964, 1933965, 1933966, 1933967
EPA 365.1 Rev. 2.0	10/04/2017	10/09/2017	Sima Feizi	10/10/2017	Lipi Saha	1933964, 1933965, 1933966, 1933967
EPA 365.1 Rev. 2.0 dissolved	10/04/2017			10/04/2017 16:03	Megan Treadwell	1933968
	10/04/2017			10/04/2017 16:04	Megan Treadwell	1933969
	10/04/2017			10/04/2017 16:05	Megan Treadwell	1933970
	10/04/2017			10/04/2017 16:06	Megan Treadwell	1933971
EPA 8321B	10/04/2017	10/09/2017	Hoor Shaik	10/10/2017	Juyoung Kim	1933989, 1933990
SM 2120 B	10/04/2017			10/04/2017 16:50	Tanya Welborn	1933960
	10/04/2017			10/04/2017 16:51	Tanya Welborn	1933961, 1933962
	10/04/2017			10/04/2017 16:52	Tanya Welborn	1933963
SM 2320 B-97	10/04/2017			10/10/2017	Dale L. Simmons	1933960, 1933961, 1933962, 1933963
SM 2540 C-97	10/04/2017			10/06/2017	Yijie Li	1933960, 1933961, 1933962, 1933963
SM 2540 D-97	10/04/2017			10/06/2017	Yijie Li	1933960, 1933961, 1933962, 1933963
SM 4500 F-C-97	10/04/2017			10/10/2017	Dale L. Simmons	1933960, 1933961, 1933962, 1933963
SM 5310 B-00	10/04/2017			10/10/2017	Ping Hua	1933964, 1933965, 1933966, 1933967
USGS O-2060-01	10/04/2017	10/09/2017	Hoor Shaik	10/11/2017	Julie Michelle Frank	1933989, 1933990