

Chemical Analysis Report

NW-DIST-2017-08-25-01

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**

Request ID: **RQ-2017-08-14-23**

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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 14-SEP-2017 15:04



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 BELOW TRAMMEL CREEK

Collection Date/Time: 08/24/2017 11:30

Field ID: G4NW0311

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1924486	EPA 8321B	Sucralose**	0.057		ug/L	P330900	MS
	USGS O-2060-01	2,4-D	0.018		ug/L	P330883	
		Diuron	8.0E-04	U	ug/L	P330883	
		Fenuron	0.0080	U	ug/L	P330883	MS
		Imidacloprid	0.0041		ug/L	P330883	
		Bentazon	8.0E-04	U	ug/L	P330883	MS
		Linuron	0.0040	U	ug/L	P330883	
		Acetaminophen**	0.0080	U	ug/L	P330883	
		MCP	0.0020	U	ug/L	P330883	
		Carbamazepine**	4.0E-04	U	ug/L	P330883	
		Triclopyr**	0.0040	U	ug/L	P330883	
		Primidone**	0.0040	U	ug/L	P330883	
		Fluridone**	4.0E-04	U	ug/L	P330883	MS, RPD

Sample Location: SHOAL RIVER BELOW JUNIPER CK.

Collection Date/Time: 08/24/2017 12:30

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1924473	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P330885	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P330903	
		Sulfate	1.1		mg SO4/L	P330907	
	SM 2120 B	Color (true)	72		PCU	P330887	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P331030	
	SM 2540 C-97	TDS	35		mg/L	P331275	
	SM 2540 D-97	TSS	6	I	mg/L	P331267	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P331032	
1924475	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P331100	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P330897	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P331052	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P330931	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P331190	
1924477	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P330890	

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: SHOAL RIVER BELOW TITI CK.

Collection Date/Time: 08/24/2017 13:50

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1924474	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P330885	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P330903	
		Sulfate	1.2		mg SO4/L	P330907	
	SM 2120 B	Color (true)	68		PCU	P330887	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P331030	

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1924474	SM 2540 C-97	TDS	26		mg/L	P331275	
	SM 2540 D-97	TSS	10	I	mg/L	P331267	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P331032	
1924476	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P331100	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P330897	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P331053	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P330932	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P331190	
1924478	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P330890	

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: SHOAL RIVER BELOW TITI CK.

Collection Date/Time: 08/24/2017 13:50

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1924487	EPA 8321B	Sucralose**	0.028	I	ug/L	P330900	MS
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P330883	
		Diuron	8.0E-04	U	ug/L	P330883	
		Fenuron	0.0080	U	ug/L	P330883	MS
		Imidacloprid	0.0035		ug/L	P330883	
		Bentazon	8.0E-04	U	ug/L	P330883	MS
		Linuron	0.0040	U	ug/L	P330883	
		Acetaminophen**	0.0080	U	ug/L	P330883	
		MCP	0.0020	U	ug/L	P330883	
		Carbamazepine**	4.0E-04	U	ug/L	P330883	
		Triclopyr**	0.0040	U	ug/L	P330883	
		Primidone**	0.0040	U	ug/L	P330883	
		Fluridone**	4.0E-04	U	ug/L	P330883	MS, RPD

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P330885

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P330903

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330907

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331100

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330897

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331052

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331053

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330931

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330932

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330890

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

Reference Method: EPA 8321B
Batch ID: P330900

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P330887

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P331030

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

Reference Method: SM 2540 C-97
Batch ID: P331275

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P331267

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P331032

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P331190

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

Reference Method: USGS O-2060-01
Batch ID: P330883

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
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: P330903

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330907

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331100

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330897

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331052

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331053

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330931

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.1		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P330900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	42.2		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P331030

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

Reference Method: SM 4500 F-C-97
 Batch ID: P331032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.9		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P331190

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

Reference Method: USGS O-2060-01
 Batch ID: P330883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	113		P	40 - 150
Acetaminophen	142		P	30 - 150
Bentazon	62.2		P	40 - 150
Carbamazepine	132		P	40 - 150
Diuron	108		P	40 - 150
Fenuron	123		P	40 - 150
Fluridone	101		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	92.2		P	40 - 150
MCPD	121		P	40 - 150
Primidone	133		P	40 - 150
Triclopyr	111		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P330903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924451	Chloride	97.7		P	90 - 110
1924473	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P330907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924451	Sulfate	100		P	90 - 110
1924473	Sulfate	100		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924386	Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924447	NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331053

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924476	NO2NO3-N	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924343	Total-P	98.4	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924556	Total-P	97.0	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924477	O-Phosphate-P	99.2	99.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P330900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924465	Sucralose	36.4	28.4	F/F	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P331032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924385	Fluoride	96.5	99.1	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P331190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924475	Organic Carbon	103	102	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P330883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924466	2,4-D	102	100	P/P	40 - 150
1924466	Acetaminophen	136	140	P/P	30 - 150
1924466	Bentazon	12.4	13.4	F/F	40 - 150
1924466	Carbamazepine	79.0	88.4	P/P	40 - 150
1924466	Diuron	44.5	48.1	P/P	40 - 150
1924466	Fenuron	40.2	38.6	P/F	40 - 150
1924466	Fluridone	20.6	32.6	F/F	40 - 150
1924466	Imidacloprid	130	146	P/P	40 - 160
1924466	Linuron	58.7	65.4	P/P	40 - 150
1924466	MCP	128	134	P/P	40 - 150
1924466	Primidone	54.8	65.7	P/P	40 - 150
1924466	Triclopyr	104	118	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924445	Turbidity	3.34	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924451	Chloride	0.685	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924451	Sulfate	0.268	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924452	Ammonia-N	0.647	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924386	Kjeldahl Nitrogen	0.00740	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924447	NO2NO3-N	0.374	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331053

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924476	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924343	Total-P	0.483	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924556	Total-P	0.427	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924477	O-Phosphate-P	0.402	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P330900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924465	Sucralose	10.1	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P330887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924451	Color (true)	0.900	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P331030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924385	Total Alkalinity	0.247	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P331275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924584	TDS	3.73	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P331032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924385	Fluoride	1.97	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P331190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924475	Organic Carbon	0.860	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P330883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924466	2,4-D	1.78	Spike	P	0 - 30
1924466	Acetaminophen	2.62	Spike	P	0 - 30
1924466	Bentazon	7.76	Spike	P	0 - 30
1924466	Carbamazepine	11.3	Spike	P	0 - 30
1924466	Diuron	7.69	Spike	P	0 - 30
1924466	Fenuron	4.01	Spike	P	0 - 30
1924466	Fluridone	45.0	Spike	F	0 - 30
1924466	Imidacloprid	11.7	Spike	P	0 - 30
1924466	Linuron	10.7	Spike	P	0 - 30
1924466	MCPP	4.67	Spike	P	0 - 30
1924466	Primidone	18.0	Spike	P	0 - 30
1924466	Triclopyr	12.3	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Quality Assurance Report Surrogates

Lab Sample ID: 1924486
Field Sample ID: G4NW0311

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Carbamazepine-d10	130	P	30 - 160
EPA 8321B	Diuron-d6	76.0	P	30 - 160
EPA 8321B	Primidone-d5	100	P	30 - 160
EPA 8321B	Sucralose-d6	55.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	115	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	106	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	130	P	30 - 160
USGS O-2060-01	Diuron-d6	76.0	P	30 - 160
USGS O-2060-01	Primidone-d5	100	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.4	P	40 - 160

Lab Sample ID: 1924487
Field Sample ID: G4NW0410

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	102	P	30 - 160
EPA 8321B	Carbamazepine-d10	131	P	30 - 160
EPA 8321B	Diuron-d6	80.5	P	30 - 160
EPA 8321B	Primidone-d5	100	P	30 - 160
EPA 8321B	Sucralose-d6	47.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	119	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	102	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	131	P	30 - 160
USGS O-2060-01	Diuron-d6	80.5	P	30 - 160
USGS O-2060-01	Primidone-d5	100	P	30 - 160
USGS O-2060-01	Sucralose-d6	47.8	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78584
Included Lab Sample IDs: 1924473, 1924474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.4	100	P/P	90 - 110
Sulfate	99.0	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78632
Included Lab Sample IDs: 1924473, 1924474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A78633
Included Lab Sample IDs: 1924473, 1924474

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

Reference Method: SM 2120 B

Run ID: A78633

Included Lab Sample IDs: 1924473, 1924474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A78634

Included Lab Sample IDs: 1924477, 1924478

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78681

Included Lab Sample IDs: 1924475, 1924476

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

Reference Method: SM 2320 B-97

Run ID: A78696

Included Lab Sample IDs: 1924473, 1924474

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

Reference Method: SM 4500 F-C-97

Run ID: A78696

Included Lab Sample IDs: 1924473, 1924474

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78701

Included Lab Sample IDs: 1924475, 1924476

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78702

Included Lab Sample IDs: 1924475, 1924476

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	107	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78720

Included Lab Sample IDs: 1924475, 1924476

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A78746

Included Lab Sample IDs: 1924475, 1924476

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	101	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A78765

Included Lab Sample IDs: 1924486, 1924487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	128	126	P/P	50 - 150
Acetaminophen	107	110	P/P	60 - 150
Bentazon	81.0	82.7	P/P	50 - 150
MCP	146	145	P/P	50 - 150
Triclopyr	136	138	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A787749

Included Lab Sample IDs: 1924486, 1924487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	120	128	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A78805

Included Lab Sample IDs: 1924486, 1924487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	125	127	P/P	60 - 150
Diuron	108	109	P/P	60 - 150
Fenuron	97.2	93.9	P/P	60 - 150
Fluridone	102	101	P/P	60 - 160
Imidacloprid	108	110	P/P	60 - 150
Linuron	105	89.7	P/P	60 - 150
Primidone	115	126	P/P	60 - 150

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				3.34	
EPA 300.0 Rev. 2.1	Chloride	100	97.7 99.1		0.685	
	Sulfate	101	100 100		0.268	
EPA 350.1 Rev. 2.0	Ammonia-N	105				0.647
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	101 101			0.0074
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	106	105 105			0.374
	NO ₂ NO ₃ -N	107	107 107			0.0
EPA 365.1 Rev. 2.0	Total-P	101	98.4 97.9			0.483

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 365.1 Rev. 2.0	Total-P	96.2	97.0	97.4			0.427
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	99.2	99.6			0.402
EPA 8321B	Sucralose	42.2	36.4	28.4			10.1
SM 2120 B	Color (true)					0.900	
SM 2320 B-97	Total Alkalinity	103				0.247	
SM 2540 C-97	TDS					3.73	
SM 4500 F-C-97	Fluoride	94.9	96.5	99.1			1.97
SM 5310 B-00	Organic Carbon	103	103	102			0.860
USGS O-2060-01	2,4-D	113	102	100			1.78
	Acetaminophen	142	136	140			2.62
	Bentazon	62.2	12.4	13.4			7.76
	Carbamazepine	132	79.0	88.4			11.3
	Diuron	108	44.5	48.1			7.69
	Fenuron	123	40.2	38.6			4.01
	Fluridone	101	20.6	32.6			45.0
	Imidacloprid	104	130	146			11.7
	Linuron	92.2	58.7	65.4			10.7
	MCPP	121	128	134			4.67
	Primidone	133	54.8	65.7			18.0
	Triclopyr	111	104	118			12.3

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1924473, 1924474
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1924473, 1924474
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1924473, 1924474
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1924475, 1924476
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1924475, 1924476
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1924475, 1924476
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1924475, 1924476
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1924477, 1924478
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1924486, 1924487
SM 2120 B / E31780	True Color measured at 450 nm	1924473, 1924474
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1924473, 1924474
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1924473, 1924474
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1924473, 1924474
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1924473, 1924474
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1924475, 1924476
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1924486, 1924487
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1924486, 1924487

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	08/25/2017			08/25/2017 15:17	Tanya Welborn	1924473, 1924474
EPA 300.0 Rev. 2.1	08/25/2017			08/25/2017	Julia Storbeck	1924473, 1924474
EPA 350.1 Rev. 2.0	08/25/2017			08/29/2017	Sofia Elnemr	1924475, 1924476
EPA 351.2 Rev. 2.0	08/25/2017	08/28/2017	Adrian Shelby	08/30/2017	Joseph Suarez	1924475, 1924476
EPA 353.2 Rev. 2.0	08/25/2017			08/30/2017	Beverly Y. Sanders	1924475, 1924476
EPA 365.1 Rev. 2.0	08/25/2017	08/28/2017	Sima Feizi	08/29/2017	Lipi Saha	1924475, 1924476
EPA 365.1 Rev. 2.0 dissolved	08/25/2017			08/25/2017 14:29	Megan Treadwell	1924477
	08/25/2017			08/25/2017 14:34	Megan Treadwell	1924478
EPA 8321B	08/25/2017	08/30/2017	Hoor Shaik	08/31/2017	Juyoung Kim	1924486, 1924487
SM 2120 B	08/25/2017			08/25/2017 14:32	Tanya Welborn	1924473
	08/25/2017			08/25/2017 14:33	Tanya Welborn	1924474
SM 2320 B-97	08/25/2017			08/30/2017	Dale L. Simmons	1924473, 1924474
SM 2540 C-97	08/25/2017			08/30/2017	Yijie Li	1924473, 1924474
SM 2540 D-97	08/25/2017			08/30/2017	Yijie Li	1924473, 1924474
SM 4500 F-C-97	08/25/2017			08/30/2017	Dale L. Simmons	1924473, 1924474
SM 5310 B-00	08/25/2017			08/31/2017	Ping Hua	1924475, 1924476
USGS O-2060-01	08/25/2017	08/30/2017	Hoor Shaik	09/02/2017	Juyoung Kim	1924486, 1924487