

Chemical Analysis Report

NW-DIST-2017-05-24-01

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

Event Description: **Choctawhatchee River north WBID 49C,E,A 679**
Request ID: **RQ-2017-05-22-29**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government St
Suite 208A
Pensacola, FL 32502-5794
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 19-JUN-2017 14:52



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: Black Creek

Collection Date/Time: 05/23/2017 12:10

Field ID: G3NW0131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901179	EPA 8321B	Sucralose**	0.011	I	ug/L	P325694	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P325789	
		Diuron	8.0E-04	U	ug/L	P325789	
		Fenuron	0.0040	U	ug/L	P325789	
		Imidacloprid	0.0011	I	ug/L	P325789	
		Bentazon	8.0E-04	U	ug/L	P325789	MS
		Linuron	0.0040	U	ug/L	P325789	
		Acetaminophen**	0.0080	U	ug/L	P325789	
		MCP	0.0020	U	ug/L	P325789	
		Carbamazepine**	4.0E-04	U	ug/L	P325789	
		Triclopyr**	0.0040	U	ug/L	P325789	
		Primidone**	0.0040	U	ug/L	P325789	
		Fluridone**	4.0E-04	U	ug/L	P325789	

Sample Location: Choctawhatchee River

Collection Date/Time: 05/23/2017 14:30

Field ID: G3NW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901169	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P325793	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P326709	
		Sulfate	2.5		mg SO4/L	P326766	
		Color (true)	66		PCU	P325783	
	SM 2320 B-97	Total Alkalinity	32		mg CaCO3/L	P325952	
	SM 2540 C-97	TDS	66		mg/L	P326092	
	SM 2540 D-97	TSS	11		mg/L	P326268	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P325955	RPD
	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P325917	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P325868	
1901171	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P325887	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P325804	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P326073	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.012		mg P/L	P325776	
	dissolved						

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: Choctawhatchee River

Collection Date/Time: 05/23/2017 13:15

Field ID: G3NW0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901170	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P325793	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P326709	
		Sulfate	2.2		mg SO4/L	P326766	
		Color (true)	12		PCU	P325786	
	SM 2320 B-97	Total Alkalinity	50		mg CaCO3/L	P325953	

Field ID: G3NW0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1901170	SM 2540 C-97	TDS	74		mg/L	P326092	
	SM 2540 D-97	TSS	12		mg/L	P326268	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P325957	RPD
1901172	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P325917	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P325868	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P325887	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P325804	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P326158	
1901174	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P325777	

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P325793

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P326709

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P326766

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325917

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325868

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325887

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325804

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325776

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325777

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

Reference Method: EPA 8321B
Batch ID: P325694

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P325783

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P325786

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325952

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

Reference Method: SM 2320 B-97
Batch ID: P325953

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

Reference Method: SM 2540 C-97
Batch ID: P326092

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P326268

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P325955

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P325957

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P326073

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

Reference Method: SM 5310 B-00
 Batch ID: P326158

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

Reference Method: USGS O-2060-01
 Batch ID: P325789

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0040	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCP	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: P326709

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	93.1		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325917

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325868

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325804

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325776

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325777

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

Reference Method: EPA 8321B
Batch ID: P325694

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	76.7		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P325952

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P325953

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

Reference Method: SM 4500 F-C-97
 Batch ID: P325955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.5		P	92 - 103

Reference Method: SM 4500 F-C-97
 Batch ID: P325957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.8		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P326073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.5		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P326158

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.0		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P325789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	66.6		P	40 - 140
Acetaminophen	48.4		P	40 - 140
Bentazon	63.2		P	40 - 140
Carbamazepine	92.2		P	40 - 140
Diuron	89.0		P	40 - 140
Fenuron	88.8		P	40 - 140
Fluridone	85.0		P	40 - 140
Imidacloprid	77.0		P	40 - 160
Linuron	74.6		P	40 - 140
MCP	81.2		P	40 - 140
Primidone	78.6		P	40 - 140
Triclopyr	77.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P326709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899321	Chloride	95.6		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901124	Chloride	94.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901477	Sulfate	101		P	90 - 110
1901589	Sulfate	93.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901171	Ammonia-N	97.9	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901296	Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901163	NO2NO3-N	96.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901171	Total-P	101	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901093	O-Phosphate-P	96.6	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901174	O-Phosphate-P	100	99.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P325694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900888	Sucralose	99.0	68.0	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
 Batch ID: P325955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901062	Fluoride	94.4	98.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P325957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901426	Fluoride	94.3	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P326073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901088	Organic Carbon	96.8	96.8	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P326158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1902401	Organic Carbon	92.5	92.8	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P325789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900995	2,4-D	71.4	63.8	P/P	40 - 140
1900995	Acetaminophen	79.2	75.4	P/P	40 - 140
1900995	Bentazon	31.4	28.0	F/F	40 - 140
1900995	Carbamazepine	69.6	62.2	P/P	40 - 140
1900995	Diuron	57.8	52.0	P/P	40 - 140
1900995	Fenuron	49.4	67.6	P/P	40 - 140
1900995	Fluridone	75.0	65.6	P/P	40 - 140
1900995	Imidacloprid	120	111	P/P	40 - 160
1900995	Linuron	77.0	70.4	P/P	40 - 140
1900995	MCP	64.0	54.2	P/P	40 - 140
1900995	Primidone	64.2	62.4	P/P	40 - 140
1900995	Triclopyr	67.4	63.2	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P325793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901162	Turbidity	0.643	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899321	Chloride	2.12	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901477	Sulfate	0.151	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901171	Ammonia-N	0.630	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901296	Kjeldahl Nitrogen	2.22	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901163	NO2NO3-N	1.92	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901171	Total-P	4.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901093	O-Phosphate-P	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901174	O-Phosphate-P	0.272	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P325694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900888	Sucralose	3.15	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P325783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901170	Color (true)	4.92	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P325786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901124	Color (true)	1.05	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901062	Total Alkalinity	0.393	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901426	Total Alkalinity	0.344	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P326092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901292	TDS	1.26	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901062	Fluoride	3.89	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901426	Fluoride	3.38	Spike	F	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P326073

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901088	Organic Carbon	0.0565	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P326158

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902401	Organic Carbon	0.239	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P325789

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900995	2,4-D	10.5	Spike	P	0 - 30
1900995	Acetaminophen	4.92	Spike	P	0 - 30
1900995	Bentazon	11.4	Spike	P	0 - 30
1900995	Carbamazepine	11.2	Spike	P	0 - 30
1900995	Diuron	10.6	Spike	P	0 - 30
1900995	Fenuron	23.4	Spike	P	0 - 30
1900995	Fluridone	13.4	Spike	P	0 - 30
1900995	Imidacloprid	7.63	Spike	P	0 - 30
1900995	Linuron	8.96	Spike	P	0 - 30
1900995	MCPP	16.6	Spike	P	0 - 30
1900995	Primidone	2.84	Spike	P	0 - 30
1900995	Triclopyr	6.43	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: 1901179
Field Sample ID: G3NW0131

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	84.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	87.2	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	87.3	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	115	P	30 - 160
USGS O-2060-01	Diuron-d6	94.5	P	30 - 160
USGS O-2060-01	Primidone-d5	106	P	30 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76655

Included Lab Sample IDs: 1901173, 1901174

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A76656

Included Lab Sample IDs: 1901169, 1901170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115
Color (true)	102	103	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76659

Included Lab Sample IDs: 1901169, 1901170

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76697

Included Lab Sample IDs: 1901171, 1901172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76706

Included Lab Sample IDs: 1901171, 1901172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76718

Included Lab Sample IDs: 1901171, 1901172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76730

Included Lab Sample IDs: 1901169, 1901170

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A76730

Included Lab Sample IDs: 1901169, 1901170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	95.7	P/P	90 - 110
Fluoride	93.9	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A76745

Included Lab Sample IDs: 1901179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	79.5	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76779

Included Lab Sample IDs: 1901171, 1901172

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

Reference Method: SM 5310 B-00

Run ID: A76792

Included Lab Sample IDs: 1901171

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	94.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76825

Included Lab Sample IDs: 1901172

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.5	94.6	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A76863

Included Lab Sample IDs: 1901179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	87.2	84.8	P/P	50 - 150
Acetaminophen	85.6	104	P/P	60 - 150
Bentazon	101	112	P/P	50 - 150
Carbamazepine	102	105	P/P	60 - 150
Diuron	96.8	98.4	P/P	60 - 150
Fenuron	99.2	112	P/P	60 - 150
Fluridone	113	112	P/P	60 - 160
Imidacloprid	94.4	96.4	P/P	60 - 150
Linuron	96.4	88.4	P/P	60 - 150
MCPP	90.4	94.0	P/P	50 - 150
Primidone	89.2	95.2	P/P	60 - 150
Triclopyr	92.4	95.6	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A77052
Included Lab Sample IDs: 1901169, 1901170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.2	91.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A77072
Included Lab Sample IDs: 1901169, 1901170

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	94.2	99.8	P/P	90 - 110
Sulfate	99.8	94.8	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				0.643	
EPA 300.0 Rev. 2.1	Chloride	93.1	95.6 94.3		2.12	
	Sulfate	95.8	93.4 101		0.151	
EPA 350.1 Rev. 2.0	Ammonia-N	96.5	97.9 98.8			0.630
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.3	103 101			2.22
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.2 98.2			1.92
EPA 365.1 Rev. 2.0	Total-P	106	101 105			4.30
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.6 97.6			1.03
	O-Phosphate-P	101	100 99.7			0.272
EPA 8321B	Sucralose	76.7	99.0 68.0			3.15
SM 2120 B	Color (true)				4.92	
	Color (true)				1.05	
SM 2320 B-97	Total Alkalinity	103			0.393	
	Total Alkalinity	103			0.344	
SM 2540 C-97	TDS				1.26	
SM 4500 F-C-97	Fluoride	92.5	94.4 98.9			3.89
	Fluoride	95.8	94.3 98.5			3.38
SM 5310 B-00	Organic Carbon	93.5	96.8 96.8			0.0565
	Organic Carbon	93.0	92.5 92.8			0.239
USGS O-2060-01	2,4-D	66.6	71.4 63.8			10.5
	Acetaminophen	48.4	79.2 75.4			4.92
	Bentazon	63.2	31.4 28.0			11.4
	Carbamazepine	92.2	69.6 62.2			11.2
	Diuron	89.0	57.8 52.0			10.6
	Fenuron	88.8	49.4 67.6			23.4
	Fluridone	85.0	75.0 65.6			13.4
	Imidacloprid	77.0	120 111			7.63
	Linuron	74.6	77.0 70.4			8.96
	MCP	81.2	64.0 54.2			16.6
	Primidone	78.6	64.2 62.4			2.84
	Triclopyr	77.4	67.4 63.2			6.43

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1901169, 1901170
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1901169, 1901170
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1901169, 1901170
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1901171, 1901172
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1901171, 1901172
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1901171, 1901172
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1901171, 1901172
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1901173, 1901174
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1901179
SM 2120 B / E31780	True Color measured at 450 nm	1901169, 1901170
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1901169, 1901170
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1901169, 1901170
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1901169, 1901170
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1901169, 1901170
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1901171, 1901172
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1901179
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1901179

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/24/2017			05/24/2017 16:45	Sima Feizi	1901169, 1901170
EPA 300.0 Rev. 2.1	05/24/2017			06/09/2017	Julia Storbeck	1901169, 1901170
	05/24/2017			06/12/2017	Julia Storbeck	1901169, 1901170
EPA 350.1 Rev. 2.0	05/24/2017			05/26/2017	Julia Storbeck	1901171, 1901172
EPA 351.2 Rev. 2.0	05/24/2017	05/26/2017	Adrian Shelby	05/31/2017	Joseph Suarez	1901171, 1901172
EPA 353.2 Rev. 2.0	05/24/2017			05/26/2017	Beverly Y. Sanders	1901171, 1901172
EPA 365.1 Rev. 2.0	05/24/2017	05/25/2017	Adrian Shelby	05/26/2017	Lipi Saha	1901171, 1901172
EPA 365.1 Rev. 2.0 dissolved	05/24/2017			05/24/2017 14:56	Julia Storbeck	1901174
	05/24/2017			05/24/2017 15:25	Julia Storbeck	1901173
EPA 8321B	05/24/2017	05/27/2017	Mohammad Ghaffari	05/28/2017	Mohammad Ghaffari	1901179
SM 2120 B	05/24/2017			05/24/2017 15:23	Tanya Welborn	1901169
	05/24/2017			05/24/2017 15:49	Tanya Welborn	1901170
SM 2320 B-97	05/24/2017			05/26/2017	Dale L. Simmons	1901169, 1901170
SM 2540 C-97	05/24/2017			05/26/2017	Yijie Li	1901169, 1901170
SM 2540 D-97	05/24/2017			05/26/2017	Yijie Li	1901169, 1901170
SM 4500 F-C-97	05/24/2017			05/26/2017	Dale L. Simmons	1901169, 1901170
SM 5310 B-00	05/24/2017			05/31/2017	Julie Michelle Frank	1901171
	05/24/2017			06/01/2017	Julie Michelle Frank	1901172
USGS O-2060-01	05/24/2017	05/30/2017	Hoor Shaik	05/31/2017	Juyoung Kim	1901179