

Chemical Analysis Report

NW-DIST-2017-10-06-01

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 679**

Request ID: **RQ-2017-09-25-22**

Customer: **NW-DIST**

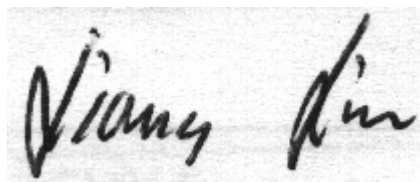
Project ID: **SMP**

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: 25-OCT-2017 14:45

A handwritten signature in black ink, appearing to read "Liang Lin", 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: Black Creek East of Hwy 81

Collection Date/Time: 10/05/2017 12:35

Field ID: G3NW0131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935037	EPA 8321B	Sucralose**	0.038	I	ug/L	P333049	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P333050	
		Diuron	8.0E-04	U	ug/L	P333050	
		Fenuron	0.0080	U	ug/L	P333050	
		Imidacloprid	0.0015	I	ug/L	P333050	MS
		Bentazon	8.0E-04	U	ug/L	P333050	MS
		Linuron	0.0040	U	ug/L	P333050	
		Acetaminophen**	0.0080	U	ug/L	P333050	
		MCP	0.0020	U	ug/L	P333050	
		Carbamazepine**	4.0E-04	U	ug/L	P333050	
		Triclopyr**	0.0040	U	ug/L	P333050	MS
		Primidone**	0.0040	U	ug/L	P333050	
		Fluridone**	4.0E-04	U	ug/L	P333050	

Ref. Method and Comment:

USGS O-2060-01: Results confirmed in re-extraction. MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Choctawhatchee R. abv. Smokehouse Lake

Collection Date/Time: 10/05/2017 13:35

Field ID: G3NW0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935025	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P332899	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P333239	
		Sulfate	2.1		mg SO4/L	P333242	
		Color (true)	52		PCU	P332894	
	SM 2320 B-97	Total Alkalinity	53		mg CaCO3/L	P333523	
	SM 2540 C-97	TDS	74		mg/L	P333157	
	SM 2540 D-97	TSS	7	I	mg/L	P333109	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P333526	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P333392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P333459	
1935027	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P333229	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P333266	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P333653	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P332884	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Choctawhatchee R. upstream of Holmes Ck.

Collection Date/Time: 10/05/2017 15:00

Field ID: G3NW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935026	EPA 180.1 Rev. 2.0	Turbidity	9.0		NTU	P332899	
	EPA 300.0 Rev. 2.1	Chloride	5.7	A	mg Cl/L	P333239	
		Sulfate	2.3	A	mg SO4/L	P333242	

Field ID: G3NW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1935026	SM 2120 B	Color (true)	59	A	PCU	P332895	
	SM 2320 B-97	Total Alkalinity	41		mg CaCO3/L	P333523	
	SM 2540 C-97	TDS	71		mg/L	P333157	
	SM 2540 D-97	TSS	6	I	mg/L	P333109	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P333526	
1935028	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P333392	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P333459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.44		mg N/L	P333229	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P333266	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P333653	
1935030	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P332884	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P332899

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P333239

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P333242

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P333392

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P333459

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P333229

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: P333266

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332884

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

Reference Method: EPA 8321B
Batch ID: P333049

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P332894

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P332895

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333523

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

Reference Method: SM 2540 C-97
Batch ID: P333157

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333109

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333526

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P333653

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

Reference Method: USGS O-2060-01
Batch ID: P333050

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
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: P333239

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333392

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333459

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333229

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P333266

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P332884

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

Reference Method: EPA 8321B
 Batch ID: P333049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	116		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P333523

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

Reference Method: SM 4500 F-C-97
 Batch ID: P333526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P333653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P333050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	63.2		P	40 - 150
Acetaminophen	111		P	30 - 150
Bentazon	30.3		P	30 - 150
Carbamazepine	104		P	40 - 150
Diuron	99.7		P	40 - 150
Fenuron	93.4		P	40 - 150
Fluridone	109		P	40 - 150
Imidacloprid	92.6		P	40 - 160
Linuron	94.7		P	40 - 150
MCPP	63.8		P	40 - 150
Primidone	97.1		P	40 - 150
Triclopyr	62.7		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935026	Chloride	101		P	90 - 110
1935059	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935026	Sulfate	95.9		P	90 - 110
1935059	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934982	Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935028	Kjeldahl Nitrogen	107	110	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934982	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934699	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934983	O-Phosphate-P	94.1	96.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P333049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935016	Sucralose	66.8	86.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P333526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935177	Fluoride	101	102	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P333050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1935465	Acetaminophen	98.9	96.0	P/P	30 - 150
1935465	Bentazon	18.5	18.0	F/F	30 - 150
1935465	Carbamazepine	83.5	78.7	P/P	40 - 150
1935465	Diuron	58.1	56.6	P/P	40 - 150
1935465	Fenuron	88.5	85.1	P/P	40 - 150
1935465	Fluridone	82.4	80.9	P/P	40 - 150
1935465	Imidacloprid	177	168	F/F	40 - 160
1935465	Linuron	76.8	75.3	P/P	40 - 150
1935465	MCP	44.5	44.8	P/P	40 - 150
1935465	Primidone	114	116	P/P	40 - 150
1935465	Triclopyr	38.5	37.2	F/F	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934984	Turbidity	2.96	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935026	Chloride	1.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935026	Sulfate	1.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934982	Ammonia-N	0.348	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935028	Kjeldahl Nitrogen	2.34	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934982	NO2NO3-N	0.258	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934699	Total-P	0.261	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934983	O-Phosphate-P	1.60	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P333049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935016	Sucralose	17.9	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P332894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934950	Color (true)	0.596	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P332895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935026	Color (true)	0.906	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333523

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935177	Total Alkalinity	0.0131	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P333157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934952	TDS	5.51	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
 Batch ID: P333526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935177	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P333653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934955	Organic Carbon	1.33	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P333050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1935465	2,4-D	3.65	Spike	P	0 - 30
1935465	Acetaminophen	2.98	Spike	P	0 - 30
1935465	Bentazon	2.52	Spike	P	0 - 30
1935465	Carbamazepine	5.92	Spike	P	0 - 30
1935465	Diuron	1.45	Spike	P	0 - 30
1935465	Fenuron	3.92	Spike	P	0 - 30
1935465	Fluridone	1.69	Spike	P	0 - 30
1935465	Imidacloprid	3.80	Spike	P	0 - 30
1935465	Linuron	1.97	Spike	P	0 - 30
1935465	MCPP	0.672	Spike	P	0 - 30
1935465	Primidone	1.83	Spike	P	0 - 30
1935465	Triclopyr	3.33	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: 1935037
 Field Sample ID: G3NW0131

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	82.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160
EPA 8321B	Diuron-d6	76.1	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	40 - 160
USGS O-2060-01	2,4-D-d3	59.6	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	82.5	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	113	P	30 - 160
USGS O-2060-01	Diuron-d6	76.1	P	30 - 160
USGS O-2060-01	Primidone-d5	108	P	30 - 160
USGS O-2060-01	Sucralose-d6	110	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A79397

Included Lab Sample IDs: 1935029, 1935030

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	97.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A79399

Included Lab Sample IDs: 1935025, 1935026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	85 - 115
Color (true)	102	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A79400

Included Lab Sample IDs: 1935025, 1935026

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79473

Included Lab Sample IDs: 1935025, 1935026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	104	P/P	90 - 110
Chloride	104	103	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A79478

Included Lab Sample IDs: 1935037

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.5	96.7	P/P	50 - 150
Acetaminophen	92.9	93.9	P/P	60 - 150
Bentazon	95.0	90.6	P/P	50 - 150
Carbamazepine	96.7	97.9	P/P	60 - 150
Diuron	95.2	102	P/P	60 - 150
Fenuron	95.5	93.9	P/P	60 - 150
Fluridone	110	107	P/P	60 - 160
Imidacloprid	94.2	92.1	P/P	60 - 150
Linuron	101	98.2	P/P	60 - 150
MCPP	102	95.0	P/P	50 - 150
Primidone	94.6	96.6	P/P	60 - 150
Triclopyr	100	96.4	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79506

Included Lab Sample IDs: 1935027, 1935028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79555

Included Lab Sample IDs: 1935027, 1935028

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79578

Included Lab Sample IDs: 1935027, 1935028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A79590

Included Lab Sample IDs: 1935037

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	92.6	93.7	P/P	60 - 150

Reference Method: SM 2320 B-97

Run ID: A79620

Included Lab Sample IDs: 1935025, 1935026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.6	P/P	90 - 110
Total Alkalinity	99.6	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79620

Included Lab Sample IDs: 1935025, 1935026

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79645

Included Lab Sample IDs: 1935027, 1935028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	105	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A79655

Included Lab Sample IDs: 1935027, 1935028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	P/P	90 - 110
Organic Carbon	100	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.96	
EPA 300.0 Rev. 2.1	Chloride	100	101	100		1.25	
	Sulfate	96.7	95.9	96.8		1.07	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	99.8	101			0.348
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.9	107	110			2.34
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	105	102	102			0.258
EPA 365.1 Rev. 2.0	Total-P	98.5	100	101			0.261
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.6	94.1	96.5			1.60
EPA 8321B	Sucralose	116	66.8	86.8			17.9
SM 2120 B	Color (true)					0.596	
	Color (true)					0.906	
SM 2320 B-97	Total Alkalinity	102				0.0131	
SM 2540 C-97	TDS					5.51	
SM 4500 F-C-97	Fluoride	99.0	101	102			0.473
SM 5310 B-00	Organic Carbon	101					1.33
USGS O-2060-01	2,4-D	63.2					3.65
	Acetaminophen	111	98.9	96.0			2.98
	Bentazon	30.3	18.5	18.0			2.52
	Carbamazepine	104	83.5	78.7			5.92
	Diuron	99.7	58.1	56.6			1.45
	Fenuron	93.4	88.5	85.1			3.92
	Fluridone	109	82.4	80.9			1.69
	Imidacloprid	92.6	177	168			3.80
	Linuron	94.7	76.8	75.3			1.97
	MCP	63.8	44.5	44.8			0.672
	Primidone	97.1	114	116			1.83
	Triclopyr	62.7	38.5	37.2			3.33

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1935025, 1935026
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1935025, 1935026
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1935025, 1935026
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1935027, 1935028
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1935027, 1935028
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1935027, 1935028
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1935027, 1935028
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1935029, 1935030
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1935037
SM 2120 B / E31780	True Color measured at 450 nm	1935025, 1935026
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1935025, 1935026
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1935025, 1935026
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1935025, 1935026
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1935025, 1935026
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1935027, 1935028
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1935037

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1935037

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	10/06/2017			10/06/2017 17:25	Tanya Welborn	1935025, 1935026
EPA 300.0 Rev. 2.1	10/06/2017			10/10/2017	Julia Storbeck	1935025, 1935026
EPA 350.1 Rev. 2.0	10/06/2017			10/13/2017	Sofia Elnemr	1935027, 1935028
EPA 351.2 Rev. 2.0	10/06/2017	10/16/2017	Sofia Elnemr	10/18/2017	Joseph Suarez	1935027, 1935028
EPA 353.2 Rev. 2.0	10/06/2017			10/12/2017	Beverly Y. Sanders	1935027, 1935028
EPA 365.1 Rev. 2.0	10/06/2017	10/12/2017	Sima Feizi	10/16/2017	Lipi Saha	1935027, 1935028
EPA 365.1 Rev. 2.0 dissolved	10/06/2017			10/06/2017 15:24	Megan Treadwell	1935029
	10/06/2017			10/06/2017 15:25	Megan Treadwell	1935030
EPA 8321B	10/06/2017	10/12/2017	Juyoung Kim	10/12/2017	Juyoung Kim	1935037
SM 2120 B	10/06/2017			10/06/2017 16:10	Tanya Welborn	1935025
	10/06/2017			10/06/2017 16:13	Tanya Welborn	1935026
SM 2320 B-97	10/06/2017			10/16/2017	Dale L. Simmons	1935025, 1935026
SM 2540 C-97	10/06/2017			10/09/2017	Yijie Li	1935025, 1935026
SM 2540 D-97	10/06/2017			10/09/2017	Yijie Li	1935025, 1935026
SM 4500 F-C-97	10/06/2017			10/16/2017	Dale L. Simmons	1935025, 1935026
SM 5310 B-00	10/06/2017			10/18/2017	Ping Hua	1935027, 1935028
USGS O-2060-01	10/06/2017	10/12/2017	Hoor Shaik	10/13/2017	Julie Michelle Frank	1935037