

Chemical Analysis Report

WQAP-2017-08-16-02

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

Event Description: **RUN 11**
Request ID: **RQ-2017-08-14-27**
Customer: **WQAP**
Project ID: **SMP**

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Date Certified: 07-SEP-2017 13:34



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: Cedar Creek

Collection Date/Time: 08/15/2017 12:00

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921664	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P330337	
	EPA 300.0 Rev. 2.1	Chloride	160		mg Cl/L	P330469	
		Sulfate	29		mg SO4/L	P330467	
	SM 2120 B	Color (true)	76		PCU	P330349	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P330605	
	SM 2540 C-97	TDS	564	A	mg/L	P330692	
	SM 2540 D-97	TSS	3	IA	mg/L	P330920	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P330801	
1921665	EPA 350.1 Rev. 2.0	Ammonia-N	0.079		mg N/L	P330513	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P330357	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P330477	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P330418	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P330561	
1921666	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P330345	

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: Cedar Creek

Collection Date/Time: 08/15/2017 12:00

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921671	EPA 8321B	Sucralose**	4.1		ug/L	P330383	
	USGS O-2060-01	2,4-D	0.17	J	ug/L	P330313	SUR
		Diuron	0.0028	I	ug/L	P330313	
		Fenuron	0.0080	U	ug/L	P330313	
		Imidacloprid	0.060		ug/L	P330313	
		Bentazon	0.051	J	ug/L	P330313	SUR
		Linuron	0.0040	U	ug/L	P330313	
		Acetaminophen**	0.0080	U	ug/L	P330313	
		MCP	0.0025	IJ	ug/L	P330313	SUR
		Carbamazepine**	0.0023		ug/L	P330313	
		Triclopyr**	0.0040	U	ug/L	P330313	
		Primidone**	0.033	J	ug/L	P330313	SUR
		Fluridone**	7.4E-04	I	ug/L	P330313	RPD

Ref. Method and Comment:

EPA 8321B: MS accuracy for sucralose could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes. MS accuracy for 2,4-D could not be assessed due to high concentration in the spiked sample. Results confirmed in re-analysis.

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes. MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample. Results confirmed in re-analysis.

Quality Assurance Report

Method Blank Results

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330337

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330467

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330469

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330477

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330418

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330345

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

Reference Method: EPA 8321B
Batch ID: P330383

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P330349

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P330605

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

Reference Method: SM 2540 C-97
Batch ID: P330692

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330920

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P330801

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P330561

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

Reference Method: USGS O-2060-01
Batch ID: P330313

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	0.0080	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: P330467

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330357

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330477

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330418

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330345

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

Reference Method: EPA 8321B
Batch ID: P330383

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	125		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P330605

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P330801

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330561

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

Reference Method: USGS O-2060-01
Batch ID: P330313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	70.9		P	40 - 150
Acetaminophen	77.2		P	30 - 150
Bentazon	79.8		P	40 - 150
Carbamazepine	84.8		P	40 - 150
Diuron	91.8		P	40 - 150
Fenuron	90.6		P	40 - 150
Fluridone	101		P	40 - 150
Imidacloprid	76.0		P	40 - 160
Linuron	99.0		P	40 - 150
MCP	57.5		P	40 - 150
Primidone	85.2		P	40 - 150
Triclopyr	62.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921642	Sulfate	97.8		P	90 - 110
1921643	Sulfate	92.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921642	Chloride	98.5		P	90 - 110
1921643	Chloride	93.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921605	Ammonia-N	101	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P330357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921645	Kjeldahl Nitrogen	107	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P330477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921645	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P330418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921691	Total-P	95.8	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P330345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921680	O-Phosphate-P	91.0	93.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P330801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921904	Fluoride	94.6	96.5	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P330561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921560	Organic Carbon	90.5	90.8	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P330313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921540	Acetaminophen	110	104	P/P	30 - 150
1921540	Bentazon	58.3	56.0	P/P	40 - 150
1921540	Carbamazepine	94.5	95.8	P/P	40 - 150
1921540	Diuron	72.1	72.8	P/P	40 - 150
1921540	Fenuron	78.6	81.9	P/P	40 - 150
1921540	Fluridone	96.6	62.0	P/P	40 - 150
1921540	Linuron	95.2	88.2	P/P	40 - 150
1921540	MCP	80.1	74.2	P/P	40 - 150
1921540	Primidone	115	115	P/P	40 - 150
1921540	Triclopyr	78.7	69.0	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921664	Turbidity	9.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921642	Sulfate	4.98	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921642	Chloride	1.69	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921605	Ammonia-N	1.35	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921645	Kjeldahl Nitrogen	0.722	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921645	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921691	Total-P	1.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921680	O-Phosphate-P	2.17	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P330383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921620	Sucralose	0.491	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P330349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921677	Color (true)	0.156	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921904	Total Alkalinity	0.908	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P330692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921664	TDS	5.50	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P330801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921904	Fluoride	0.946	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P330561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921560	Organic Carbon	0.230	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P330313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921540	2,4-D	7.60	Spike	P	0 - 30
1921540	Acetaminophen	3.84	Spike	P	0 - 30
1921540	Bentazon	2.34	Spike	P	0 - 30
1921540	Carbamazepine	1.39	Spike	P	0 - 30
1921540	Diuron	0.414	Spike	P	0 - 30
1921540	Fenuron	4.09	Spike	P	0 - 30
1921540	Fluridone	38.5	Spike	F	0 - 30
1921540	Imidacloprid	0.475	Spike	P	0 - 30
1921540	Linuron	7.68	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P330313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921540	MCP	7.23	Spike	P	0 - 30
1921540	Primidone	0.226	Spike	P	0 - 30
1921540	Triclopyr	13.1	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: 1921671
Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	128	P	30 - 160
EPA 8321B	Carbamazepine-d10	127	P	30 - 160
EPA 8321B	Diuron-d6	105	P	30 - 160
EPA 8321B	Primidone-d5	181	F	30 - 160
EPA 8321B	Sucralose-d6	92.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	176	F	40 - 160
USGS O-2060-01	Acetaminophen-d4	128	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	127	P	30 - 160
USGS O-2060-01	Diuron-d6	105	P	30 - 160
USGS O-2060-01	Primidone-d5	181	F	30 - 160
USGS O-2060-01	Sucralose-d6	92.8	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78421
Included Lab Sample IDs: 1921664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	99.9	P/P	90 - 110
Sulfate	97.2	98.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78439
Included Lab Sample IDs: 1921664

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78443
Included Lab Sample IDs: 1921666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A78444
Included Lab Sample IDs: 1921664

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78495
Included Lab Sample IDs: 1921665

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78496
Included Lab Sample IDs: 1921665

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A78513
Included Lab Sample IDs: 1921665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A78526
Included Lab Sample IDs: 1921665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A78532
Included Lab Sample IDs: 1921665

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

Reference Method: SM 2320 B-97
Run ID: A78552
Included Lab Sample IDs: 1921664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.8	P/P	90 - 110

Reference Method: USGS O-2060-01
Run ID: A78596
Included Lab Sample IDs: 1921671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	72.3	82.7	P/P	50 - 150
Acetaminophen	80.1	78.6	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
 Run ID: A78596
 Included Lab Sample IDs: 1921671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	105	106	P/P	50 - 150
Carbamazepine	80.6	82.2	P/P	60 - 150
Diuron	86.2	89.3	P/P	60 - 150
Fenuron	87.6	88.8	P/P	60 - 150
Fluridone	96.8	100	P/P	60 - 160
Imidacloprid	81.0	78.4	P/P	60 - 150
Linuron	93.8	94.0	P/P	60 - 150
MCPP	66.2	69.3	P/P	50 - 150
Primidone	79.8	86.8	P/P	60 - 150
Triclopyr	74.3	78.8	P/P	50 - 150

Reference Method: SM 4500 F-C-97
 Run ID: A78604
 Included Lab Sample IDs: 1921664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	99.1	P/P	90 - 110

Reference Method: EPA 8321B
 Run ID: A78750
 Included Lab Sample IDs: 1921671

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	120	119	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				9.91	
EPA 300.0 Rev. 2.1	Chloride	95.7	98.5 93.4		1.69	
	Sulfate	94.8	97.8 92.9		4.98	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	101 103			1.35
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	107 108			0.722
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104 104			0.0
EPA 365.1 Rev. 2.0	Total-P	97.1	95.8 94.2			1.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	91.0 93.0			2.17
EPA 8321B	Sucralose	125				0.491
SM 2120 B	Color (true)				0.156	
SM 2320 B-97	Total Alkalinity	102			0.908	
SM 2540 C-97	TDS				5.50	
SM 4500 F-C-97	Fluoride	97.7	94.6 96.5			0.946
SM 5310 B-00	Organic Carbon	95.5	90.5 90.8			0.230
USGS O-2060-01	2,4-D	70.9				7.60
	Acetaminophen	77.2	110 104			3.84

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Bentazon	79.8	58.3	56.0			2.34
	Carbamazepine	84.8	94.5	95.8			1.39
	Diuron	91.8	72.1	72.8			0.414
	Fenuron	90.6	78.6	81.9			4.09
	Fluridone	101	96.6	62.0			38.5
	Imidacloprid	76.0					0.475
	Linuron	99.0	95.2	88.2			7.68
	MCP	57.5	80.1	74.2			7.23
	Primidone	85.2	115	115			0.226
	Triclopyr	62.3	78.7	69.0			13.1

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1921664
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1921664
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1921664
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1921665
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1921665
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1921665
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1921665
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1921666
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1921671
SM 2120 B / E31780	True Color measured at 450 nm	1921664
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1921664
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1921664
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1921664
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1921664
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1921665
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1921671
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1921671

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	08/16/2017			08/16/2017 15:34	DeAsia Armster	1921664
EPA 300.0 Rev. 2.1	08/16/2017			08/16/2017	Julia Storbeck	1921664
	08/16/2017			08/17/2017	Julia Storbeck	1921664
EPA 350.1 Rev. 2.0	08/16/2017			08/17/2017	Sofia Elnemr	1921665
EPA 351.2 Rev. 2.0	08/16/2017	08/17/2017	Adrian Shelby	08/21/2017	Joseph Suarez	1921665
EPA 353.2 Rev. 2.0	08/16/2017			08/18/2017	Beverly Y. Sanders	1921665
EPA 365.1 Rev. 2.0	08/16/2017	08/17/2017	Sima Feizi	08/18/2017	Lipi Saha	1921665
EPA 365.1 Rev. 2.0 dissolved	08/16/2017			08/16/2017 15:33	Megan Treadwell	1921666
EPA 8321B	08/16/2017	08/24/2017	Julie Michelle Frank	08/31/2017	Julie Michelle Frank	1921671
SM 2120 B	08/16/2017			08/16/2017 16:24	Tanya Welborn	1921664
SM 2320 B-97	08/16/2017			08/17/2017	Dale L. Simmons	1921664
SM 2540 C-97	08/16/2017			08/18/2017	Yijie Li	1921664
SM 2540 D-97	08/16/2017			08/18/2017	Yijie Li	1921664
SM 4500 F-C-97	08/16/2017			08/24/2017	Dale L. Simmons	1921664
SM 5310 B-00	08/16/2017			08/19/2017	Ping Hua	1921665
USGS O-2060-01	08/16/2017	08/17/2017	Hoor Shaik	08/20/2017	Juyoung Kim	1921671