

Chemical Analysis Report

WQAP-2017-07-11-02

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

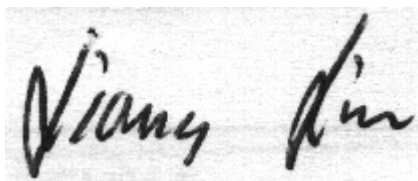
Event Description: **Cedar&Stevenson Crk**
Request ID: **RQ-2017-07-10-22**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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: 28-JUL-2017 11:43

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: Cedar Creek

Collection Date/Time: 07/10/2017 12:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1912379	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P328427	
	EPA 300.0 Rev. 2.1	Chloride	91		mg Cl/L	P328454	
		Sulfate	19		mg SO4/L	P328457	
	SM 2120 B	Color (true)	52	A	PCU	P328275	
	SM 2320 B-97	Total Alkalinity	92		mg CaCO3/L	P328433	
	SM 2540 C-97	TDS	295		mg/L	P328640	
	SM 2540 D-97	TSS	4	I	mg/L	P328731	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P328436	
1912380	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P328413	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P328560	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P328448	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P328597	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P328792	
1912381	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P328306	

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: 07/10/2017 12:40

Field ID: G5SW0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1912408	EPA 8321B	Sucralose**	2.2		ug/L	P328334	
	USGS O-2060-01	2,4-D	0.029		ug/L	P328267	
		Diuron	0.0026	I	ug/L	P328267	
		Fenuron	0.0080	U	ug/L	P328267	
		Imidacloprid	0.065		ug/L	P328267	
		Bentazon	0.020		ug/L	P328267	
		Linuron	0.0040	U	ug/L	P328267	
		Acetaminophen**	0.019	I	ug/L	P328267	
		MCP	0.0053	I	ug/L	P328267	
		Carbamazepine**	0.0017		ug/L	P328267	
		Triclopyr**	0.0040	U	ug/L	P328267	
		Primidone**	0.012	I	ug/L	P328267	
		Fluridone**	0.0019		ug/L	P328267	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for carbamazepine and imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P328427

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328454

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328457

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328413

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328560

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328448

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328597

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328306

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

Reference Method: EPA 8321B
Batch ID: P328334

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P328275

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P328433

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

Reference Method: SM 2540 C-97
 Batch ID: P328640

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P328731

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P328436

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P328792

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

Reference Method: USGS O-2060-01
 Batch ID: P328267

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: P328454

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328457

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328413

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	102		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328448

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: P328597

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328306

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

Reference Method: EPA 8321B
Batch ID: P328334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	81.4		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P328433

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P328436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P328792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P328267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	114		P	40 - 150
Acetaminophen	126		P	30 - 150
Bentazon	94.3		P	40 - 150
Carbamazepine	125		P	40 - 150
Diuron	128		P	40 - 150
Fenuron	128		P	40 - 150
Fluridone	127		P	40 - 150
Imidacloprid	118		P	40 - 160
Linuron	129		P	40 - 150
MCP	109		P	40 - 150
Primidone	117		P	40 - 150
Triclopyr	115		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912280	Chloride	99.6		P	90 - 110
1912345	Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912280	Sulfate	97.2		P	90 - 110
1912345	Sulfate	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912314	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912385	Kjeldahl Nitrogen	98.8	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328448

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912313	NO2NO3-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912349	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912335	O-Phosphate-P	99.3	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P328334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912610	Sucralose	81.9	94.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P328436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912388	Fluoride	100	98.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P328792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912288	Organic Carbon	97.2	96.5	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P328267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1911688	2,4-D	125	110	P/P	40 - 150
1911688	Acetaminophen	114	96.4	P/P	30 - 150
1911688	Bentazon	71.5	86.8	P/P	40 - 150
1911688	Diuron	92.5	97.0	P/P	40 - 150
1911688	Fenuron	99.9	88.6	P/P	40 - 150
1911688	Fluridone	78.1	75.8	P/P	40 - 150
1911688	Linuron	127	127	P/P	40 - 150
1911688	MCP	133	120	P/P	40 - 150
1911688	Primidone	129	118	P/P	40 - 150
1911688	Triclopyr	115	107	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P328427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912382	Turbidity	1.71	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912345	Chloride	1.64	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912345	Sulfate	1.89	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912314	Ammonia-N	0.535	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912385	Kjeldahl Nitrogen	2.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912313	NO2NO3-N	0.679	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912349	Total-P	1.82	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912335	O-Phosphate-P	2.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P328334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912610	Sucralose	13.9	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P328275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912379	Color (true)	5.67	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P328433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912388	Total Alkalinity	0.0835	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P328640

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912312	TDS	3.97	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P328436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912388	Fluoride	1.42	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P328792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912288	Organic Carbon	0.553	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P328267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911688	2,4-D	11.4	Spike	P	0 - 30
1911688	Acetaminophen	17.0	Spike	P	0 - 30
1911688	Bentazon	16.1	Spike	P	0 - 30
1911688	Carbamazepine	8.58	Spike	P	0 - 30
1911688	Diuron	4.14	Spike	P	0 - 30
1911688	Fenuron	12.0	Spike	P	0 - 30
1911688	Fluridone	2.82	Spike	P	0 - 30
1911688	Imidacloprid	8.36	Spike	P	0 - 30
1911688	Linuron	0.567	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P328267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1911688	MCP	10.2	Spike	P	0 - 30
1911688	Primidone	4.59	Spike	P	0 - 30
1911688	Triclopyr	7.43	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: 1912408
Field Sample ID: G5SW0129

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	88.2	P	40 - 160
USGS O-2060-01	2,4-D-d3	110	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	65.8	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	65.8	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	92.5	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	92.5	P	30 - 160
USGS O-2060-01	Diuron-d6	67.3	P	30 - 160
USGS O-2060-01	Diuron-d6	67.3	P	30 - 160
USGS O-2060-01	Primidone-d5	96.6	P	30 - 160
USGS O-2060-01	Primidone-d5	96.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A77640
Included Lab Sample IDs: 1912379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	99.8	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77649
Included Lab Sample IDs: 1912381

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77680
Included Lab Sample IDs: 1912380

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A77688
Included Lab Sample IDs: 1912379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A77688
Included Lab Sample IDs: 1912379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77690
Included Lab Sample IDs: 1912379

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77691
Included Lab Sample IDs: 1912380

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A77695
Included Lab Sample IDs: 1912379

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	109	P/P	90 - 110
Sulfate	103	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A77773
Included Lab Sample IDs: 1912380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.4	94.4	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A77777
Included Lab Sample IDs: 1912408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	98.0	97.3	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A77780
Included Lab Sample IDs: 1912380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A77819
Included Lab Sample IDs: 1912380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	98.9	P/P	90 - 110

Reference Method: USGS O-2060-01
Run ID: A77880
Included Lab Sample IDs: 1912408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	90.9	83.2	P/P	50 - 150
Acetaminophen	99.3	97.2	P/P	60 - 150
Bentazon	108	100	P/P	50 - 150
Carbamazepine	92.5	82.9	P/P	60 - 150
Diuron	91.9	81.9	P/P	60 - 150
Fenuron	86.8	84.7	P/P	60 - 150
Fluridone	89.4	103	P/P	60 - 160
Imidacloprid	71.4	72.4	P/P	60 - 150
Linuron	93.8	95.4	P/P	60 - 150
MCPP	93.5	85.8	P/P	50 - 150
Primidone	89.1	69.6	P/P	60 - 150
Triclopyr	90.2	84.7	P/P	50 - 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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.71	
EPA 300.0 Rev. 2.1	Chloride	100	96.6	99.6		1.64	
	Sulfate	98.0	94.9	97.2		1.89	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	101			0.535
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	98.8	103			2.85
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	99.0	98.0			0.679
EPA 365.1 Rev. 2.0	Total-P	105	104	102			1.82
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	99.3	102			2.39
EPA 8321B	Sucralose	81.4	81.9	94.2			13.9
SM 2120 B	Color (true)					5.67	
SM 2320 B-97	Total Alkalinity	104				0.0835	
SM 2540 C-97	TDS					3.97	
SM 4500 F-C-97	Fluoride	98.9	100	98.3			1.42
SM 5310 B-00	Organic Carbon	98.8	97.2	96.5			0.553
USGS O-2060-01	2,4-D	114	125	110			11.4
	Acetaminophen	126	114	96.4			17.0
	Bentazon	94.3	71.5	86.8			16.1
	Carbamazepine	125					8.58
	Diuron	128	92.5	97.0			4.14
	Fenuron	128	99.9	88.6			12.0
	Fluridone	127	78.1	75.8			2.82

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
USGS O-2060-01	Imidacloprid	118				8.36
	Linuron	129	127	127		0.567
	MCPP	109	133	120		10.2
	Primidone	117	129	118		4.59
	Triclopyr	115	115	107		7.43

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1912379
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1912379
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1912379
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1912380
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1912380
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1912380
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1912380
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1912381
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1912408
SM 2120 B / E31780	True Color measured at 450 nm	1912379
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1912379
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1912379
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1912379
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1912379
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1912380
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1912408
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1912408

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	07/11/2017			07/11/2017 18:06	DeAsia Armster	1912379
EPA 300.0 Rev. 2.1	07/11/2017			07/12/2017	Julia Storbeck	1912379
EPA 350.1 Rev. 2.0	07/11/2017			07/12/2017	Sofia Elnemr	1912380
EPA 351.2 Rev. 2.0	07/11/2017	07/17/2017	Adrian Shelby	07/18/2017	Joseph Suarez	1912380
EPA 353.2 Rev. 2.0	07/11/2017			07/13/2017	Beverly Y. Sanders	1912380
EPA 365.1 Rev. 2.0	07/11/2017	07/17/2017	Vijayalakshmi Reddy	07/18/2017	Lipi Saha	1912380
EPA 365.1 Rev. 2.0 dissolved	07/11/2017			07/11/2017 16:33	Anthony C. Onicha	1912381
EPA 8321B	07/11/2017	07/13/2017	Mohammad Ghaffari	07/14/2017	Mohammad Ghaffari	1912408
SM 2120 B	07/11/2017			07/11/2017 14:59	Julia Storbeck	1912379
SM 2320 B-97	07/11/2017			07/13/2017	Dale L. Simmons	1912379
SM 2540 C-97	07/11/2017			07/13/2017	Yijie Li	1912379
SM 2540 D-97	07/11/2017			07/13/2017	Yijie Li	1912379
SM 4500 F-C-97	07/11/2017			07/13/2017	Dale L. Simmons	1912379
SM 5310 B-00	07/11/2017			07/19/2017	Sofia Elnemr	1912380
USGS O-2060-01	07/11/2017	07/12/2017	Hoor Shaik	07/20/2017	Juyoung Kim	1912408