Chemical Analysis Report

WQAP-2017-08-02-02

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

Event Description: **Gilley Creek**
Request ID: **RQ-2017-07-31-42**
Customer: **WQAP**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 23-AUG-2017 11:07

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: GILLEY CREEK **Collection Date/Time: 08/01/2017 13:35**

Field ID: G2SW0024 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1918249	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P329567	
	EPA 300.0 Rev. 2.1	Chloride	7.0	A	mg Cl/L	P329709	
		Sulfate	14	A	mg SO4/L	P329713	
	SM 2120 B	Color (true)	330		PCU	P329579	
	SM 2320 B-97	Total Alkalinity	8.3		mg CaCO3/L	P329762	
	SM 2540 C-97	TDS	133		mg/L	P329920	
	SM 2540 D-97	TSS	24		mg/L	P330149	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P329766	
1918250	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P329678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P329627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P329696	
	EPA 365.1 Rev. 2.0	Total-P	0.63		mg P/L	P329635	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P329828	
1918251	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.47		mg P/L	P329590	

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: GILLEY CREEK **Collection Date/Time: 08/01/2017 13:35**

Field ID: G2SW0024 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1918255	EPA 8321B	Sucralose**	0.010	U	ug/L	P329540	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P329539	
		Diuron	8.0E-04	U	ug/L	P329539	
		Fenuron	0.0080	U	ug/L	P329539	RPD
		Imidacloprid	0.029		ug/L	P329539	
		Bentazon	8.0E-04	U	ug/L	P329539	
		Linuron	0.0040	U	ug/L	P329539	RPD
		Acetaminophen**	0.0080	U	ug/L	P329539	
		MCPP	0.0020	U	ug/L	P329539	
		Carbamazepine**	4.0E-04	U	ug/L	P329539	
		Triclopyr**	0.0040	U	ug/L	P329539	
		Primidone**	0.0040	U	ug/L	P329539	
		Fluridone**	4.0E-04	U	ug/L	P329539	

Ref. Method and Comment:
USGS O-2060-01: Result for imidacloprid was confirmed in re-extraction beyond routine holding time due to method blank positive; imidacloprid = 0.035 ug/L in the reanalysis.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329567

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: P329709

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329713

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329678

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329627

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329696

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329635

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329590

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

Reference Method: EPA 8321B
Batch ID: P329540

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P329579

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P329762

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

Reference Method: SM 2540 C-97
Batch ID: P329920

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330149

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P329766

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329828

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

Reference Method: USGS O-2060-01
Batch ID: P329539

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	0.0016	I	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: P329709

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329713

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329678

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329627

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329696

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329635

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329590

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

Reference Method: EPA 8321B
Batch ID: P329540

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	63.4		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P329762

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

Reference Method: SM 4500 F-C-97
Batch ID: P329766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P329828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P329539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	102		P	40 - 150
Acetaminophen	98.2		P	30 - 150
Bentazon	93.8		P	40 - 150
Carbamazepine	102		P	40 - 150
Diuron	111		P	40 - 150
Fenuron	97.6		P	40 - 150
Fluridone	97.5		P	40 - 150
Imidacloprid	100		P	40 - 160
Linuron	112		P	40 - 150
MCPP	99.3		P	40 - 150
Primidone	113		P	40 - 150
Triclopyr	107		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918203	Chloride	97.9		P	90 - 110
1918249	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918203	Sulfate	98.6		P	90 - 110
1918249	Sulfate	109		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918209	Ammonia-N	97.5	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918209	Kjeldahl Nitrogen	92.7	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918250	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918210	Total-P	95.1	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918197	O-Phosphate-P	92.4	93.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P329540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918022	Sucralose	107	106	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P329766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918188	Fluoride	100	99.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P329828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918124	Organic Carbon	94.2	94.7	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P329539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1918088	2,4-D	96.8	84.4	P/P	40 - 150
1918088	Acetaminophen	68.1	76.9	P/P	30 - 150
1918088	Bentazon	102	87.2	P/P	40 - 150
1918088	Carbamazepine	110	107	P/P	40 - 150
1918088	Diuron	87.2	93.7	P/P	40 - 150
1918088	Fenuron	54.9	78.6	P/P	40 - 150
1918088	Fluridone	100	102	P/P	40 - 150
1918088	Imidacloprid	49.4	72.2	P/P	40 - 160
1918088	Linuron	118	71.4	P/P	40 - 150
1918088	MCPP	82.9	81.3	P/P	40 - 150
1918088	Primidone	80.2	85.4	P/P	40 - 150
1918088	Triclopyr	98.0	97.6	P/P	40 - 150

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P329567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918203	Turbidity	0.673	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918249	Chloride	0.700	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918249	Sulfate	1.27	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918209	Ammonia-N	0.148	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918209	Kjeldahl Nitrogen	3.95	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918250	NO2NO3-N	0.573	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918210	Total-P	2.72	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P329590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918197	O-Phosphate-P	1.44	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P329540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918022	Sucralose	0.895	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P329579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918187	Color (true)	0.763	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P329762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918188	Total Alkalinity	0.170	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P329920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918206	TDS	4.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P329766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918188	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918124	Organic Carbon	0.285	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P329539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918088	2,4-D	13.7	Spike	P	0 - 30
1918088	Acetaminophen	12.1	Spike	P	0 - 30
1918088	Bentazon	15.8	Spike	P	0 - 30
1918088	Carbamazepine	2.49	Spike	P	0 - 30
1918088	Diuron	7.25	Spike	P	0 - 30
1918088	Fenuron	35.5	Spike	F	0 - 30
1918088	Fluridone	1.92	Spike	P	0 - 30
1918088	Imidacloprid	22.8	Spike	P	0 - 30
1918088	Linuron	49.0	Spike	F	0 - 30

Quality Assurance Report
Precision

Reference Method: USGS O-2060-01
Batch ID: P329539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1918088	MCPP	1.96	Spike	P	0 - 30
1918088	Primidone	6.22	Spike	P	0 - 30
1918088	Triclopyr	0.339	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: 1918255
Field Sample ID: G2SW0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	55.9	P	40 - 160
USGS O-2060-01	2,4-D-d3	147	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	107	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	81.4	P	30 - 160
USGS O-2060-01	Diuron-d6	73.0	P	30 - 160
USGS O-2060-01	Primidone-d5	65.1	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A78128
Included Lab Sample IDs: 1918249

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78130
Included Lab Sample IDs: 1918249

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: A78141
Included Lab Sample IDs: 1918251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	96.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78163
Included Lab Sample IDs: 1918249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78163
Included Lab Sample IDs: 1918249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	100	P/P	90 - 110
Sulfate	107	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A78181
Included Lab Sample IDs: 1918250

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78182
Included Lab Sample IDs: 1918250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78187
Included Lab Sample IDs: 1918250

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

Reference Method: SM 2320 B-97
Run ID: A78219
Included Lab Sample IDs: 1918249

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

Reference Method: SM 4500 F-C-97
Run ID: A78219
Included Lab Sample IDs: 1918249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A78224
Included Lab Sample IDs: 1918250

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

Reference Method: EPA 8321B
Run ID: A78247
Included Lab Sample IDs: 1918255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	66.5	70.8	P/P	60 - 160

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A78252
Included Lab Sample IDs: 1918250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	98.9	P/P	90 - 110

Reference Method: USGS O-2060-01
Run ID: A78269
Included Lab Sample IDs: 1918255

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	105	93.3	P/P	50 - 150
Acetaminophen	112	106	P/P	60 - 150
Bentazon	122	118	P/P	50 - 150
Carbamazepine	109	84.5	P/P	60 - 150
Diuron	97.6	111	P/P	60 - 150
Fenuron	101	98.2	P/P	60 - 150
Fluridone	110	108	P/P	60 - 160
Imidacloprid	93.5	102	P/P	60 - 150
Linuron	112	98.6	P/P	60 - 150
MCPP	105	101	P/P	50 - 150
Primidone	120	106	P/P	60 - 150
Triclopyr	99.5	127	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					0.673	
EPA 300.0 Rev. 2.1	Chloride	102	106	97.9		0.700	
	Sulfate	105	109	98.6		1.27	
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	97.5	97.7			0.148
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	92.7	100			3.95
EPA 353.2 Rev. 2.0	NO2NO3-N	106	101	102			0.573
EPA 365.1 Rev. 2.0	Total-P	94.9	95.1	97.9			2.72
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	92.4	93.8			1.44
EPA 8321B	Sucralose	63.4	107	106			0.895
SM 2120 B	Color (true)					0.763	
SM 2320 B-97	Total Alkalinity	103				0.170	
SM 2540 C-97	TDS					4.33	
SM 4500 F-C-97	Fluoride	98.8	100	99.6			0.470
SM 5310 B-00	Organic Carbon	96.6	94.2	94.7			0.285
USGS O-2060-01	2,4-D	102	96.8	84.4			13.7
	Acetaminophen	98.2	68.1	76.9			12.1
	Bentazon	93.8	102	87.2			15.8
	Carbamazepine	102	110	107			2.49
	Diuron	111	87.2	93.7			7.25
	Fenuron	97.6	54.9	78.6			35.5
	Fluridone	97.5	100	102			1.92

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
USGS O-2060-01	Imidacloprid	100	49.4	72.2			22.8
	Linuron	112	118	71.4			49.0
	MCPP	99.3	82.9	81.3			1.96
	Primidone	113	80.2	85.4			6.22
	Triclopyr	107	98.0	97.6			0.339

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1918249
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1918249
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1918249
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1918250
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1918250
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1918250
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1918250
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1918251
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1918255
SM 2120 B / E31780	True Color measured at 450 nm	1918249
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1918249
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1918249
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1918249
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1918249
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1918250
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1918255
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1918255

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	08/02/2017			08/02/2017 16:29	DeAsia Armster	1918249
EPA 300.0 Rev. 2.1	08/02/2017			08/03/2017	Julia Storbeck	1918249
EPA 350.1 Rev. 2.0	08/02/2017			08/03/2017	Sofia Elnemr	1918250
EPA 351.2 Rev. 2.0	08/02/2017	08/03/2017	Adrian Shelby	08/07/2017	Joseph Suarez	1918250
EPA 353.2 Rev. 2.0	08/02/2017			08/04/2017	Beverly Y. Sanders	1918250
EPA 365.1 Rev. 2.0	08/02/2017	08/03/2017	Sima Feizi	08/04/2017	Lipi Saha	1918250
EPA 365.1 Rev. 2.0 dissolved	08/02/2017			08/02/2017 15:43	Ping Hua	1918251
EPA 8321B	08/02/2017	08/04/2017	Julie Michelle Frank	08/05/2017	Mohammad Ghaffari	1918255
SM 2120 B	08/02/2017			08/02/2017 16:06	Tanya Welborn	1918249
SM 2320 B-97	08/02/2017			08/05/2017	Dale L. Simmons	1918249
SM 2540 C-97	08/02/2017			08/04/2017	Yijie Li	1918249
SM 2540 D-97	08/02/2017			08/04/2017	Yijie Li	1918249
SM 4500 F-C-97	08/02/2017			08/05/2017	Dale L. Simmons	1918249
SM 5310 B-00	08/02/2017			08/07/2017	Ping Hua	1918250
USGS O-2060-01	08/02/2017	08/04/2017	Fe-Val Siddell	08/08/2017	Juyoung Kim	1918255