

Chemical Analysis Report

WQAP-2017-07-18-01

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

Event Description: **RUN 15**
Request ID: **RQ-2017-07-17-26**
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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 10-AUG-2017 11:20



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: Wares Tidal

Collection Date/Time: 07/17/2017 11:25

Field ID: G2SW0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913967	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P328709	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P328816	
	SM 2540 D-97	TSS	3	U	mg/L	P329301	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P328942	
1913969	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P328885	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P328893	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P328990	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P328906	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P328977	
1913971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11	A	mg P/L	P328692	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Wares Tidal

Collection Date/Time: 07/17/2017 11:25

Field ID: G2SW0029

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913980	EPA 8321B	Sucralose**	0.10		ug/L	P328678	
	USGS O-2060-01	2,4-D	0.035		ug/L	P328669	
		Diuron	0.010		ug/L	P328669	
		Fenuron	0.0080	U	ug/L	P328669	
		Imidacloprid	0.072		ug/L	P328669	
		Bentazon	0.016		ug/L	P328669	
		Linuron	0.0040	U	ug/L	P328669	
		Acetaminophen**	0.022	I	ug/L	P328669	
		MCP	0.0035	I	ug/L	P328669	
		Carbamazepine**	4.6E-04	I	ug/L	P328669	
		Triclopyr**	0.0040	U	ug/L	P328669	
		Primidone**	0.0040	U	ug/L	P328669	
		Fluridone**	0.64		ug/L	P328669	

Sample Location: Sims Brnch

Collection Date/Time: 07/17/2017 12:30

Field ID: G2SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913968	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P328709	
	SM 2320 B-97	Total Alkalinity	134	A	mg CaCO3/L	P328816	
	SM 2540 D-97	TSS	4	I	mg/L	P329302	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P328818	
1913970	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P328885	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P328893	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P328990	

Field ID: G2SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913970	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P328906	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P328977	
1913972	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P328692	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Sims Brnch

Collection Date/Time: 07/17/2017 12:30

Field ID: G2SW0056

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913981	EPA 8321B	Sucralose**	7.1		ug/L	P328678	
	USGS O-2060-01	2,4-D	0.0058	I	ug/L	P328669	
		Diuron	0.0092		ug/L	P328669	
		Fenuron	0.0080	U	ug/L	P328669	
		Imidacloprid	0.018		ug/L	P328669	
		Bentazon	0.0036		ug/L	P328669	
		Linuron	0.0040	U	ug/L	P328669	
		Acetaminophen**	0.0080	U	ug/L	P328669	
		MCP	0.0020	U	ug/L	P328669	
		Carbamazepine**	0.047		ug/L	P328669	
		Triclopyr**	0.0040	U	ug/L	P328669	
		Primidone**	0.054		ug/L	P328669	
		Fluridone**	0.0018		ug/L	P328669	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P328709

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P328885

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P328893

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328990

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328906

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328692

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

Reference Method: EPA 8321B
Batch ID: P328678

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P328816

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

Reference Method: SM 2540 D-97
Batch ID: P329301

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P329302

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P328818

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P328942

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: P328977

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

Reference Method: USGS O-2060-01
 Batch ID: P328669

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 350.1 Rev. 2.0
 Batch ID: P328885

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P328893

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P328990

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: P328906

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P328692

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P328678

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	90.0		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P328816

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

Reference Method: SM 4500 F-C-97
 Batch ID: P328818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 4500 F-C-97
 Batch ID: P328942

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

Reference Method: SM 5310 B-00
 Batch ID: P328977

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P328669

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	91.9		P	40 - 150
Acetaminophen	78.9		P	30 - 150
Bentazon	85.8		P	40 - 150
Carbamazepine	96.7		P	40 - 150
Diuron	102		P	40 - 150
Fenuron	90.5		P	40 - 150
Fluridone	91.9		P	40 - 150
Imidacloprid	92.6		P	40 - 160
Linuron	92.4		P	40 - 150
MCP	76.9		P	40 - 150
Primidone	99.6		P	40 - 150
Triclopyr	67.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P328893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914421	Kjeldahl Nitrogen	103	98.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913960	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913969	Total-P	99.0	99.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P328678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913980	Sucralose	103	105	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P328818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913968	Fluoride	95.0	96.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P328942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914151	Fluoride	101	98.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P328977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912551	Organic Carbon	97.0	99.3	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P328669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913836	2,4-D	116	107	P/P	40 - 150
1913836	Acetaminophen	116	128	P/P	30 - 150
1913836	Bentazon	74.7	77.1	P/P	40 - 150
1913836	Carbamazepine	120	120	P/P	40 - 150
1913836	Diuron	100	108	P/P	40 - 150
1913836	Fenuron	81.1	91.9	P/P	40 - 150
1913836	Fluridone	92.4	100	P/P	40 - 150
1913836	Imidacloprid	130	143	P/P	40 - 160
1913836	Linuron	102	96.4	P/P	40 - 150
1913836	MCP	98.9	116	P/P	40 - 150
1913836	Primidone	100	118	P/P	40 - 150
1913836	Triclopyr	88.5	76.4	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P328709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913868	Turbidity	0.402	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P328885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913960	Ammonia-N	0.245	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P328893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914421	Kjeldahl Nitrogen	3.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P328990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913960	NO2NO3-N	0.927	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P328906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913969	Total-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P328692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913971	O-Phosphate-P	0.700	Sample	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P328678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913980	Sucralose	1.94	Spike	P	0 - 30

Reference Method: SM 2320 B-97
 Batch ID: P328816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913968	Total Alkalinity	0.240	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P328818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913968	Fluoride	1.01	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P328942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914151	Fluoride	1.48	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P328977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912551	Organic Carbon	1.94	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P328669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913836	2,4-D	7.78	Spike	P	0 - 30
1913836	Acetaminophen	10.4	Spike	P	0 - 30
1913836	Bentazon	3.14	Spike	P	0 - 30
1913836	Carbamazepine	0.384	Spike	P	0 - 30
1913836	Diuron	7.44	Spike	P	0 - 30
1913836	Fenuron	12.5	Spike	P	0 - 30
1913836	Fluridone	8.44	Spike	P	0 - 30
1913836	Imidacloprid	9.09	Spike	P	0 - 30
1913836	Linuron	6.04	Spike	P	0 - 30
1913836	MCPP	15.6	Spike	P	0 - 30
1913836	Primidone	16.2	Spike	P	0 - 30
1913836	Triclopyr	14.7	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: 1913980
Field Sample ID: G2SW0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	104	P	40 - 160
USGS O-2060-01	2,4-D-d3	130	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	127	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	106	P	30 - 160
USGS O-2060-01	Diuron-d6	89.7	P	30 - 160
USGS O-2060-01	Primidone-d5	108	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1913981
Field Sample ID: G2SW0056

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	86.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	105	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	119	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	123	P	30 - 160
USGS O-2060-01	Diuron-d6	99.8	P	30 - 160
USGS O-2060-01	Primidone-d5	107	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77784
Included Lab Sample IDs: 1913971, 1913972

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77790
Included Lab Sample IDs: 1913967, 1913968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A77832
Included Lab Sample IDs: 1913967, 1913968

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A77832
Included Lab Sample IDs: 1913968

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77842
Included Lab Sample IDs: 1913969, 1913970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77856
Included Lab Sample IDs: 1913969, 1913970

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77856

Included Lab Sample IDs: 1913969, 1913970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.3	P/P	90 - 110
Ammonia-N	99.3	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77869

Included Lab Sample IDs: 1913967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77885

Included Lab Sample IDs: 1913969, 1913970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77893

Included Lab Sample IDs: 1913969, 1913970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.6	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77897

Included Lab Sample IDs: 1913969, 1913970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	109	P/P	90 - 110
Kjeldahl Nitrogen	108	106	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A78008

Included Lab Sample IDs: 1913980, 1913981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	97.0	91.5	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A781083

Included Lab Sample IDs: 1913980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	92.5	121	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A78113

Included Lab Sample IDs: 1913980, 1913981

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

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A78113

Included Lab Sample IDs: 1913980, 1913981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	117	97.0	P/P	50 - 150
Acetaminophen	113	110	P/P	60 - 150
Bentazon	103	130	P/P	50 - 150
Carbamazepine	121	106	P/P	60 - 150
Diuron	114	112	P/P	60 - 150
Fenuron	98.9	109	P/P	60 - 150
Fluridone	92.4	130	P/P	60 - 160
Imidacloprid	98.2	112	P/P	60 - 150
Linuron	116	118	P/P	60 - 150
MCP	99.8	101	P/P	50 - 150
Primidone	88.2	122	P/P	60 - 150
Triclopyr	73.1	87.1	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.402	
EPA 350.1 Rev. 2.0	Ammonia-N	104				0.245
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	103 98.2			3.54
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	102 101			0.927
EPA 365.1 Rev. 2.0	Total-P	97.9	99.0 99.0			0.0
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103			0.700	
EPA 8321B	Sucralose	90.0	103 105			1.94
SM 2320 B-97	Total Alkalinity	102			0.240	
SM 4500 F-C-97	Fluoride	97.4	95.0 96.5			1.01
	Fluoride	95.8	101 98.8			1.48
SM 5310 B-00	Organic Carbon	97.8	97.0 99.3			1.94
USGS O-2060-01	2,4-D	91.9	116 107			7.78
	Acetaminophen	78.9	116 128			10.4
	Bentazon	85.8	74.7 77.1			3.14
	Carbamazepine	96.7	120 120			0.384
	Diuron	102	100 108			7.44
	Fenuron	90.5	81.1 91.9			12.5
	Fluridone	91.9	92.4 100			8.44
	Imidacloprid	92.6	130 143			9.09
	Linuron	92.4	102 96.4			6.04
	MCP	76.9	98.9 116			15.6
	Primidone	99.6	100 118			16.2
	Triclopyr	67.3	88.5 76.4			14.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
---------------------	-------------	--------------------

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1913967, 1913968
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1913969, 1913970
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1913969, 1913970
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1913969, 1913970
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1913969, 1913970
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1913971, 1913972
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1913980, 1913981
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1913967, 1913968
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1913967, 1913968
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1913967, 1913968
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1913969, 1913970
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1913980, 1913981
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1913980, 1913981

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	07/18/2017			07/18/2017 15:12	DeAsia Armster	1913967, 1913968
EPA 350.1 Rev. 2.0	07/18/2017			07/20/2017	Sofia Elnemr	1913969, 1913970
EPA 351.2 Rev. 2.0	07/18/2017	07/21/2017	Adrian Shelby	07/24/2017	Joseph Suarez	1913969, 1913970
EPA 353.2 Rev. 2.0	07/18/2017			07/20/2017	Beverly Y. Sanders	1913969, 1913970
EPA 365.1 Rev. 2.0	07/18/2017	07/21/2017	Vijayalakshmi Reddy	07/24/2017	Lipi Saha	1913969, 1913970
EPA 365.1 Rev. 2.0 dissolved	07/18/2017			07/18/2017 14:30	Ping Hua	1913971
	07/18/2017			07/18/2017 14:44	Ping Hua	1913972
EPA 8321B	07/18/2017	07/26/2017	Julie Michelle Frank	07/27/2017	Mohammad Ghaffari	1913980, 1913981
SM 2320 B-97	07/18/2017			07/20/2017	Dale L. Simmons	1913967, 1913968
SM 2540 D-97	07/18/2017			07/21/2017	Yijie Li	1913967, 1913968
SM 4500 F-C-97	07/18/2017			07/20/2017	Dale L. Simmons	1913968
	07/18/2017			07/21/2017	Dale L. Simmons	1913967
SM 5310 B-00	07/18/2017			07/22/2017	Ping Hua	1913969, 1913970
USGS O-2060-01	07/18/2017	07/20/2017	Hoor Shaik	07/29/2017	Juyoung Kim	1913980, 1913981
	07/18/2017	07/20/2017	Hoor Shaik	08/03/2017	Juyoung Kim	1913980