

Chemical Analysis Report

WQAP-2017-10-20-03

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-2017-09-04-32**
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: 22-NOV-2017 10:42

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: RICE CRK

Collection Date/Time: 10/19/2017 09:35

Field ID: G2SW0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939016	EPA 8321B	Sucralose**	0.88		ug/L	P334010	
	USGS O-2060-01	2,4-D	0.027	Q	ug/L	P335524	
		Diuron	0.13		ug/L	P333766	
		Fenuron	0.042	Q	ug/L	P335524	
		Imidacloprid	0.068		ug/L	P333766	MS
		Bentazon	0.085	Q	ug/L	P335524	
		Linuron	0.0040	U	ug/L	P333766	
		Acetaminophen**	0.0080	U	ug/L	P333766	
		MCP	0.0020	UQ	ug/L	P335524	
		Carbamazepine**	0.0047	Q	ug/L	P335524	
		Triclopyr**	0.0040	UQ	ug/L	P335524	
		Primidone**	0.023		ug/L	P333766	
		Fluridone**	0.017		ug/L	P333766	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

USGS O-2060-01: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample. Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: RICE CRK

Collection Date/Time: 10/19/2017 09:35

Field ID: G2SW0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938989	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P333791	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P333850	
		Sulfate	28		mg SO4/L	P333852	
	SM 2120 B	Color (true)	120		PCU	P333799	
	SM 2320 B-97	Total Alkalinity	38		mg CaCO3/L	P333927	
	SM 2540 C-97	TDS	171	A	mg/L	P334382	
	SM 2540 D-97	TSS	5	IA	mg/L	P334371	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P333928	
1938992	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P334161	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P334174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.39		mg N/L	P334099	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P334042	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P334357	
1938995	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.12		mg P/L	P333816	MS
	dissolved						

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: LITTLE MANATEE RIVER

Collection Date/Time: 10/19/2017 10:35

Field ID: G2SW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939017	EPA 8321B	Sucralose**	0.010	U	ug/L	P334010	
	USGS O-2060-01	2,4-D	0.0020	UQ	ug/L	P335524	

Field ID: G2SW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939017	USGS O-2060-01	Diuron	0.0078		ug/L	P333766	
		Fenuron	0.0080	UQ	ug/L	P335524	
		Imidacloprid	0.052		ug/L	P333766	MS
		Bentazon	0.024	Q	ug/L	P335524	
		Linuron	0.0040	U	ug/L	P333766	
		Acetaminophen**	0.0080	U	ug/L	P333766	
		MCP	0.0020	UQ	ug/L	P335524	
		Carbamazepine**	4.0E-04	UQ	ug/L	P335524	
		Triclopyr**	0.0040	UQ	ug/L	P335524	
		Primidone**	0.0040	U	ug/L	P333766	
		Fluridone**	4.0E-04	U	ug/L	P333766	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

USGS O-2060-01: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample. Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: GAP CRK

Collection Date/Time: 10/19/2017 11:35

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939018	EPA 8321B	Sucralose**	0.12		ug/L	P334010	
	USGS O-2060-01	2,4-D	0.023	Q	ug/L	P335524	
		Diuron	0.028		ug/L	P333766	
		Fenuron	0.033	Q	ug/L	P335524	
		Imidacloprid	0.11		ug/L	P333766	MS
		Bentazon	0.039	Q	ug/L	P335524	
		Linuron	0.0040	U	ug/L	P333766	
		Acetaminophen**	0.0080	U	ug/L	P333766	
		MCP	0.0020	UQ	ug/L	P335524	
		Carbamazepine**	9.2E-04	IQ	ug/L	P335524	
		Triclopyr**	0.0040	UQ	ug/L	P335524	
		Primidone**	0.0040	U	ug/L	P333766	
		Fluridone**	0.28		ug/L	P333766	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

USGS O-2060-01: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample. Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: GAP CRK

Collection Date/Time: 10/19/2017 11:35

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938990	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P333791	
	EPA 300.0 Rev. 2.1	Chloride	53		mg Cl/L	P333850	
		Sulfate	71		mg SO4/L	P333852	
	SM 2120 B	Color (true)	82	A	PCU	P333799	
	SM 2320 B-97	Total Alkalinity	172		mg CaCO3/L	P333927	
	SM 2540 C-97	TDS	387		mg/L	P334382	

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938990	SM 2540 D-97	TSS	4	I	mg/L	P334371	
	SM 4500 F-C-97	Fluoride	0.53		mg F/L	P333928	
1938993	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P334161	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P334174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P334099	
	EPA 365.1 Rev. 2.0	Total-P	0.50		mg P/L	P334042	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P334357	
1938996	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.39		mg P/L	P333816	MS

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: WARES CRK (FRESH)

Collection Date/Time: 10/19/2017 12:10

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1938991	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P333791	
	EPA 300.0 Rev. 2.1	Chloride	36		mg Cl/L	P333850	
		Sulfate	73		mg SO4/L	P333852	
	SM 2120 B	Color (true)	30		PCU	P333799	
	SM 2320 B-97	Total Alkalinity	201		mg CaCO3/L	P333927	
	SM 2540 C-97	TDS	388	A	mg/L	P334383	
	SM 2540 D-97	TSS	3	IA	mg/L	P334372	
	SM 4500 F-C-97	Fluoride	0.54		mg F/L	P333928	
1938994	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P334161	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P334174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P334099	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P334042	
	SM 5310 B-00	Organic Carbon	7.4		mg C/L	P334357	
1938997	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P333816	MS

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: WARES CRK (FRESH)

Collection Date/Time: 10/19/2017 12:10

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939019	EPA 8321B	Sucralose**	0.046		ug/L	P334010	
	USGS O-2060-01	2,4-D	0.0059	IQ	ug/L	P335524	
		Diuron	0.0048		ug/L	P333766	
		Fenuron	0.0080	UQ	ug/L	P335524	
		Imidacloprid	0.056		ug/L	P333766	MS
		Bentazon	0.019	Q	ug/L	P335524	
		Linuron	0.0040	U	ug/L	P333766	
		Acetaminophen**	0.0080	U	ug/L	P333766	

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939019	USGS O-2060-01	MCP	0.0020	UQ	ug/L	P335524	
		Carbamazepine**	6.1E-04	IQ	ug/L	P335524	
		Triclopyr**	0.0040	UQ	ug/L	P335524	
		Primidone**	0.0040	U	ug/L	P333766	
		Fluridone**	0.035		ug/L	P333766	

Ref. Method and Comment:

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

USGS O-2060-01: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample. Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P333791

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P333850

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P333852

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P334161

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P334174

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P334099

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P334042

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333816

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

Reference Method: EPA 8321B
Batch ID: P334010

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P333799

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333927

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

Reference Method: SM 2540 C-97
Batch ID: P334382

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P334383

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P334371

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P334372

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333928

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: P334357

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

Reference Method: USGS O-2060-01
Batch ID: P333766

Component	Result	Code	Units
Acetaminophen	0.0080	U	ug/L
Diuron	8.0E-04	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0040	U	ug/L

Reference Method: USGS O-2060-01
Batch ID: P335524

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
MCPP	0.0020	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: P333850

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333852

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334161

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334174

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334099

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: P334042

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: P333816

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P334010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	88.4		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P333927

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

Reference Method: SM 4500 F-C-97
Batch ID: P333928

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P334357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P333766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	80.5		P	30 - 150
Diuron	57.6		P	40 - 150
Fluridone	103		P	40 - 150
Imidacloprid	105		P	40 - 160
Linuron	111		P	40 - 150
Primidone	102		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P335524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.0		P	40 - 150
Bentazon	82.6		P	30 - 150
Carbamazepine	101		P	40 - 150
Fenuron	98.2		P	40 - 150
MCPP	56.7		P	40 - 150
Triclopyr	61.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333850

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938883	Chloride	96.1		P	90 - 110
1939076	Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938883	Sulfate	95.7		P	90 - 110
1939076	Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938823	Ammonia-N	104	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938993	Kjeldahl Nitrogen	96.7	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938952	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938994	Total-P	99.9	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938914	O-Phosphate-P	87.3	90.5	F/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P334010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938845	Sucralose	56.4	54.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P333928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938577	Fluoride	96.8	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P334357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938951	Organic Carbon	93.8	94.1	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P333766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938977	Acetaminophen	95.0	107	P/P	30 - 150
1938977	Diuron	72.4	72.9	P/P	40 - 150
1938977	Imidacloprid	225	233	F/F	40 - 160
1938977	Linuron	97.9	103	P/P	40 - 150
1938977	Primidone	97.8	107	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P335524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939073	2,4-D	57.5	55.7	P/P	40 - 150
1939073	Bentazon	61.8	56.7	P/P	30 - 150
1939073	Carbamazepine	75.4	72.0	P/P	40 - 150
1939073	Fenuron	80.2	70.6	P/P	40 - 150
1939073	MCPP	47.1	40.2	P/P	40 - 150
1939073	Triclopyr	45.6	43.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P333791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938912	Turbidity	5.19	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939076	Chloride	0.122	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938823	Ammonia-N	2.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938993	Kjeldahl Nitrogen	0.991	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938952	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938994	Total-P	2.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938914	O-Phosphate-P	3.60	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P334010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938845	Sucralose	1.95	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P333799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938990	Color (true)	4.07	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P333927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938577	Total Alkalinity	0.118	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P334382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938989	TDS	2.34	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P334383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938991	TDS	3.86	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938577	Fluoride	0.982	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P334357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938951	Organic Carbon	0.186	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P333766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938977	Acetaminophen	11.5	Spike	P	0 - 30
1938977	Diuron	0.533	Spike	P	0 - 30
1938977	Fluridone	7.15	Spike	P	0 - 30
1938977	Imidacloprid	2.69	Spike	P	0 - 30
1938977	Linuron	5.06	Spike	P	0 - 30
1938977	Primidone	7.79	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P335524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939073	2,4-D	3.20	Spike	P	0 - 30
1939073	Bentazon	8.59	Spike	P	0 - 30
1939073	Carbamazepine	4.70	Spike	P	0 - 30
1939073	Fenuron	12.7	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P335524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939073	MCP	15.7	Spike	P	0 - 30
1939073	Triclopyr	3.84	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: 1939016
Field Sample ID: G2SW0033

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	85.4	P	30 - 160
EPA 8321B	Diuron-d6	76.6	P	30 - 160
EPA 8321B	Primidone-d5	98.2	P	30 - 160
EPA 8321B	Sucralose-d6	71.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	74.0	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	103	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	85.4	P	30 - 160
USGS O-2060-01	Diuron-d6	76.6	P	30 - 160
USGS O-2060-01	Primidone-d5	98.2	P	30 - 160
USGS O-2060-01	Sucralose-d6	71.8	P	40 - 160

Lab Sample ID: 1939017
Field Sample ID: G2SW0023

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	124	P	30 - 160
EPA 8321B	Carbamazepine-d10	90.9	P	30 - 160
EPA 8321B	Diuron-d6	76.7	P	30 - 160
EPA 8321B	Primidone-d5	103	P	30 - 160
EPA 8321B	Sucralose-d6	62.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	85.2	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	124	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	90.9	P	30 - 160
USGS O-2060-01	Diuron-d6	76.7	P	30 - 160
USGS O-2060-01	Primidone-d5	103	P	30 - 160
USGS O-2060-01	Sucralose-d6	62.5	P	40 - 160

Lab Sample ID: 1939018
Field Sample ID: G2SW0030

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	92.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	85.7	P	30 - 160
EPA 8321B	Diuron-d6	74.2	P	30 - 160
EPA 8321B	Primidone-d5	114	P	30 - 160
EPA 8321B	Sucralose-d6	55.0	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1939018
 Field Sample ID: G2SW0030

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	2,4-D-d3	76.3	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	92.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	85.7	P	30 - 160
USGS O-2060-01	Diuron-d6	74.2	P	30 - 160
USGS O-2060-01	Primidone-d5	114	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.0	P	40 - 160

Lab Sample ID: 1939019
 Field Sample ID: G2SW0031

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	89.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	94.7	P	30 - 160
EPA 8321B	Diuron-d6	82.7	P	30 - 160
EPA 8321B	Primidone-d5	118	P	30 - 160
EPA 8321B	Sucralose-d6	55.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	70.9	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	89.6	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	94.7	P	30 - 160
USGS O-2060-01	Diuron-d6	82.7	P	30 - 160
USGS O-2060-01	Primidone-d5	118	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.7	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A79698
 Included Lab Sample IDs: 1938989, 1938990, 1938991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2120 B
 Run ID: A79699
 Included Lab Sample IDs: 1938989, 1938990, 1938991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	99.6	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A79712
 Included Lab Sample IDs: 1938995, 1938996, 1938997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	94.2	P/P	90 - 110
O-Phosphate-P	94.2	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79726

Included Lab Sample IDs: 1938989, 1938990, 1938991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	101	P/P	90 - 110
Sulfate	102	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A79765

Included Lab Sample IDs: 1938989, 1938990, 1938991

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

Reference Method: SM 4500 F-C-97

Run ID: A79765

Included Lab Sample IDs: 1938989, 1938990, 1938991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79823

Included Lab Sample IDs: 1938992, 1938993, 1938994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79825

Included Lab Sample IDs: 1938992, 1938993, 1938994

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79843

Included Lab Sample IDs: 1938992, 1938993, 1938994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79897

Included Lab Sample IDs: 1938992, 1938993, 1938994

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

Reference Method: USGS O-2060-01

Run ID: A79905

Included Lab Sample IDs: 1939016, 1939017, 1939018, 1939019

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

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79905

Included Lab Sample IDs: 1939016, 1939017, 1939018, 1939019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	117	118	P/P	60 - 150
Diuron	113	112	P/P	60 - 150
Fluridone	120	122	P/P	60 - 160
Fluridone	124	120	P/P	60 - 160
Imidacloprid	114	103	P/P	60 - 150
Linuron	119	118	P/P	60 - 150
Primidone	111	118	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A79914

Included Lab Sample IDs: 1938992, 1938993, 1938994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	97.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A79950

Included Lab Sample IDs: 1939016, 1939017, 1939018, 1939019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	90.8	87.6	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A80386

Included Lab Sample IDs: 1939016, 1939017, 1939018, 1939019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	108	102	P/P	50 - 150
Bentazon	122	125	P/P	50 - 150
Carbamazepine	124	127	P/P	60 - 150
Fenuron	125	126	P/P	60 - 150
MCP	102	102	P/P	50 - 150
Triclopyr	99.5	101	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				5.19	
EPA 300.0 Rev. 2.1	Chloride	100	98.3 96.1		0.122	
	Sulfate	99.0	97.0 95.7			
EPA 350.1 Rev. 2.0	Ammonia-N	100	104 100			2.31
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	96.7 94.9			0.991
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104 104			0.0
EPA 365.1 Rev. 2.0	Total-P	105	99.9 103			2.47

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	87.3	90.5		3.60
EPA 8321B	Sucralose	88.4	56.4	54.2		1.95
SM 2120 B	Color (true)				4.07	
SM 2320 B-97	Total Alkalinity	102			0.118	
SM 2540 C-97	TDS				2.34	
	TDS				3.86	
SM 4500 F-C-97	Fluoride	99.8	96.8	98.0		0.982
SM 5310 B-00	Organic Carbon	96.3	93.8	94.1		0.186
USGS O-2060-01	2,4-D	78.0	57.5	55.7		3.20
	Acetaminophen	80.5	95.0	107		11.5
	Bentazon	82.6	61.8	56.7		8.59
	Carbamazepine	101	75.4	72.0		4.70
	Diuron	57.6	72.4	72.9		0.533
	Fenuron	98.2	80.2	70.6		12.7
	Fluridone	103				7.15
	Imidacloprid	105	225	233		2.69
	Linuron	111	97.9	103		5.06
	MCPP	56.7	47.1	40.2		15.7
	Primidone	102	97.8	107		7.79
	Triclopyr	61.8	45.6	43.9		3.84

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1938989, 1938990, 1938991
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1938989, 1938990, 1938991
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1938989, 1938990, 1938991
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1938992, 1938993, 1938994
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1938992, 1938993, 1938994
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1938992, 1938993, 1938994
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1938992, 1938993, 1938994
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1938995, 1938996, 1938997
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1939016, 1939017, 1939018, 1939019
SM 2120 B / E31780	True Color measured at 450 nm	1938989, 1938990, 1938991
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1938989, 1938990, 1938991
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1938989, 1938990, 1938991
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1938989, 1938990, 1938991
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1938989, 1938990, 1938991
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1938992, 1938993, 1938994
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1939016, 1939017, 1939018, 1939019
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1939016, 1939017, 1939018, 1939019

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	10/20/2017			10/20/2017 15:20	DeAsia Armster	1938989, 1938990, 1938991
EPA 300.0 Rev. 2.1	10/20/2017			10/20/2017	Julia Storbeck	1938989, 1938990
	10/20/2017			10/21/2017	Julia Storbeck	1938991
EPA 350.1 Rev. 2.0	10/20/2017			10/26/2017	Sofia Elnemr	1938992, 1938993, 1938994
EPA 351.2 Rev. 2.0	10/20/2017	10/27/2017	Adrian Shelby	10/30/2017	Tanya Welborn	1938992, 1938993, 1938994
EPA 353.2 Rev. 2.0	10/20/2017			10/26/2017	Beverly Y. Sanders	1938992, 1938993, 1938994
EPA 365.1 Rev. 2.0	10/20/2017	10/25/2017	Sima Feizi	10/26/2017	Lipi Saha	1938992, 1938993, 1938994
EPA 365.1 Rev. 2.0 dissolved	10/20/2017			10/20/2017 15:50	Megan Treadwell	1938996
	10/20/2017			10/20/2017 16:02	Megan Treadwell	1938995
	10/20/2017			10/20/2017 16:03	Megan Treadwell	1938997
EPA 8321B	10/20/2017	10/27/2017	Julie Michelle Frank	10/28/2017	Juyoung Kim	1939016, 1939017, 1939018, 1939019
SM 2120 B	10/20/2017			10/20/2017 15:00	Tanya Welborn	1938989
	10/20/2017			10/20/2017 15:01	Tanya Welborn	1938990
	10/20/2017			10/20/2017 15:02	Tanya Welborn	1938991
SM 2320 B-97	10/20/2017			10/24/2017	Dale L. Simmons	1938989, 1938990, 1938991
SM 2540 C-97	10/20/2017			10/25/2017	Yijie Li	1938989, 1938990, 1938991
SM 2540 D-97	10/20/2017			10/25/2017	Yijie Li	1938989, 1938990, 1938991
SM 4500 F-C-97	10/20/2017			10/24/2017	Dale L. Simmons	1938989, 1938990, 1938991
SM 5310 B-00	10/20/2017			10/30/2017	Ping Hua	1938992, 1938993, 1938994
USGS O-2060-01	10/20/2017	10/25/2017	Hoor Shaik	10/30/2017	Julie Michelle Frank	1939016, 1939017, 1939018, 1939019
	10/20/2017	11/16/2017	Hoor Shaik	11/19/2017	Julie Michelle Frank	1939016, 1939017, 1939018, 1939019