

Chemical Analysis Report

WQAP-2017-08-11-04

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

Event Description: **RUN 10**
Request ID: **RQ-2017-08-07-25**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
Tampa, FL 33637
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 06-SEP-2017 11:30



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: Clam Bayou

Collection Date/Time: 08/10/2017 10:00

Field ID: G5SW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920924	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P330134	
	SM 2320 B-97	Total Alkalinity	160		mg CaCO3/L	P330192	
	SM 2540 D-97	TSS	2	I	mg/L	P330577	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P330400	
1920927	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P330371	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P330187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P330291	
	EPA 365.1 Rev. 2.0	Total-P	0.085		mg P/L	P330213	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P330412	
1920930	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P330121	

Ref. Method and Comment:

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PP Ditch # 1

Collection Date/Time: 08/10/2017 10:50

Field ID: G5SW0134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920925	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P330134	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P330192	
	SM 2540 D-97	TSS	3	I	mg/L	P330577	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P330400	
1920928	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P330371	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P330187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P330292	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P330213	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P330412	
1920931	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P330121	

Ref. Method and Comment:

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mullet Crk Tidal

Collection Date/Time: 08/10/2017 12:35

Field ID: G5SW0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920926	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P330134	
	SM 2320 B-97	Total Alkalinity	97		mg CaCO3/L	P330192	
	SM 2540 D-97	TSS	6	I	mg/L	P330577	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P330400	
1920929	EPA 350.1 Rev. 2.0	Ammonia-N	0.080		mg N/L	P330371	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P330187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P330292	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P330219	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P330412	
1920932	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P330121	

Field ID: G5SW0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment: SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.							

Sample Location: Clam Bayou

Collection Date/Time: 08/10/2017 10:00

Field ID: G5SW0135

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920954	EPA 8321B	Sucralose**	0.23		ug/L	P330336	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P330060	
		Diuron	0.0036		ug/L	P330060	
		Fenuron	0.019	I	ug/L	P330060	
		Imidacloprid	0.018		ug/L	P330060	MS
		Bentazon	0.0036		ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.0080	U	ug/L	P330060	
		MCP	0.0027	I	ug/L	P330060	
		Carbamazepine**	6.1E-04	I	ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.0040	U	ug/L	P330060	
		Fluridone**	0.039		ug/L	P330060	

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

Sample Location: PP Ditch # 1

Collection Date/Time: 08/10/2017 10:50

Field ID: G5SW0134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920955	EPA 8321B	Sucralose**	0.64		ug/L	P330336	
	USGS O-2060-01	2,4-D	0.23		ug/L	P330060	
		Diuron	0.027		ug/L	P330060	
		Fenuron	0.0080	U	ug/L	P330060	
		Imidacloprid	0.12		ug/L	P330060	MS
		Bentazon	0.026		ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.014	I	ug/L	P330060	
		MCP	0.0079	I	ug/L	P330060	
		Carbamazepine**	0.0014	I	ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.011	I	ug/L	P330060	
		Fluridone**	0.060		ug/L	P330060	

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

Sample Location: McKay Tidal

Collection Date/Time: 08/10/2017 11:45

Field ID: G5SW0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920956	EPA 8321B	Sucralose**	1.1		ug/L	P330336	

Field ID: G5SW0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920956	USGS O-2060-01	2,4-D	0.044		ug/L	P330060	
		Diuron	0.0056		ug/L	P330060	
		Fenuron	0.0080	U	ug/L	P330060	
		Imidacloprid	0.058		ug/L	P330060	MS
		Bentazon	0.033		ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.0080	U	ug/L	P330060	
		MCPP	0.0048	I	ug/L	P330060	
		Carbamazepine**	0.0025		ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.0072	I	ug/L	P330060	
		Fluridone**	0.039		ug/L	P330060	

Ref. Method and Comment:

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

Sample Location: Mullet Crk Tidal

Collection Date/Time: 08/10/2017 12:35

Field ID: G5SW0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1920957	EPA 8321B	Sucralose**	1.1		ug/L	P330336	
	USGS O-2060-01	2,4-D	0.23		ug/L	P330060	
		Diuron	0.0056		ug/L	P330060	
		Fenuron	0.0080	U	ug/L	P330060	
		Imidacloprid	0.51		ug/L	P330060	MS
		Bentazon	0.067		ug/L	P330060	
		Linuron	0.0040	U	ug/L	P330060	
		Acetaminophen**	0.0080	U	ug/L	P330060	
		MCPP	0.0020	U	ug/L	P330060	
		Carbamazepine**	0.0016		ug/L	P330060	
		Triclopyr**	0.0040	U	ug/L	P330060	
		Primidone**	0.0044	I	ug/L	P330060	
		Fluridone**	0.043		ug/L	P330060	

Ref. Method and Comment:

EPA 8321B: MS accuracy for sucralose 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: P330134

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P330371

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330187

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330291

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330292

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330213

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330219

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330121

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

Reference Method: EPA 8321B
Batch ID: P330336

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P330192

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

Reference Method: SM 2540 D-97
Batch ID: P330577

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P330400

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P330412

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

Reference Method: USGS O-2060-01
Batch ID: P330060

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330371

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330187

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330291

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330292

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330219

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330121

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

Reference Method: EPA 8321B
Batch ID: P330336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	119		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P330192

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

Reference Method: SM 4500 F-C-97
Batch ID: P330400

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.6		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P330060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	75.7		P	40 - 150
Acetaminophen	93.1		P	30 - 150
Bentazon	67.3		P	40 - 150
Carbamazepine	101		P	40 - 150
Diuron	96.6		P	40 - 150
Fenuron	89.9		P	40 - 150
Fluridone	86.6		P	40 - 150
Imidacloprid	69.0		P	40 - 160
Linuron	83.2		P	40 - 150
MCPP	73.5		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P330060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Primidone	85.1		P	40 - 150
Triclopyr	67.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920927	Ammonia-N	95.5	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920927	Kjeldahl Nitrogen	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920840	NO2NO3-N	108	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920928	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920884	Total-P	99.2	92.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920972	Total-P	92.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920974	O-Phosphate-P	93.9	95.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P330400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920970	Fluoride	97.5	99.5	P/P	91 - 105

Reference Method: USGS O-2060-01
Batch ID: P330060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1920478	2,4-D	81.6	85.6	P/P	40 - 150
1920478	Acetaminophen	92.9	93.9	P/P	30 - 150
1920478	Bentazon	42.9	45.4	P/P	40 - 150
1920478	Carbamazepine	96.8	99.2	P/P	40 - 150
1920478	Diuron	78.5	82.9	P/P	40 - 150
1920478	Fenuron	84.2	107	P/P	40 - 150
1920478	Fluridone	65.4	76.1	P/P	40 - 150
1920478	Imidacloprid	165	178	F/F	40 - 160
1920478	Linuron	82.8	93.1	P/P	40 - 150
1920478	MCCP	59.0	63.1	P/P	40 - 150
1920478	Primidone	105	113	P/P	40 - 150
1920478	Triclopyr	56.1	63.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330134

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920865	Turbidity	3.20	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920927	Ammonia-N	0.492	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920927	Kjeldahl Nitrogen	1.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920840	NO2NO3-N	0.930	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920928	NO2NO3-N	0.289	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920884	Total-P	6.90	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920972	Total-P	8.58	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920974	O-Phosphate-P	1.31	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P330336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920954	Sucralose	7.89	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P330192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920970	Total Alkalinity	0.0123	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P330577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920330	TSS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P330400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920970	Fluoride	0.946	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P330412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920626	Organic Carbon	0.235	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P330060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1920478	2,4-D	4.78	Spike	P	0 - 30
1920478	Acetaminophen	1.06	Spike	P	0 - 30
1920478	Bentazon	5.63	Spike	P	0 - 30
1920478	Carbamazepine	2.44	Spike	P	0 - 30
1920478	Diuron	5.43	Spike	P	0 - 30
1920478	Fenuron	23.9	Spike	P	0 - 30
1920478	Fluridone	15.1	Spike	P	0 - 30
1920478	Imidacloprid	7.63	Spike	P	0 - 30
1920478	Linuron	11.7	Spike	P	0 - 30
1920478	MCP	6.66	Spike	P	0 - 30
1920478	Primidone	7.89	Spike	P	0 - 30
1920478	Triclopyr	12.7	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: 1920954
Field Sample ID: G5SW0135

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	102	P	30 - 160
EPA 8321B	Carbamazepine-d10	81.1	P	30 - 160
EPA 8321B	Diuron-d6	61.8	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	75.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	97.5	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	102	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	81.1	P	30 - 160
USGS O-2060-01	Diuron-d6	61.8	P	30 - 160
USGS O-2060-01	Primidone-d5	108	P	30 - 160
USGS O-2060-01	Sucralose-d6	75.6	P	40 - 160

Lab Sample ID: 1920955
Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	97.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	76.0	P	30 - 160
EPA 8321B	Diuron-d6	61.6	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1920955
 Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	70.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	103	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	97.7	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	76.0	P	30 - 160
USGS O-2060-01	Diuron-d6	61.6	P	30 - 160
USGS O-2060-01	Primidone-d5	101	P	30 - 160
USGS O-2060-01	Sucralose-d6	70.7	P	40 - 160

Lab Sample ID: 1920956
 Field Sample ID: G5SW0130

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	90.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.7	P	30 - 160
EPA 8321B	Diuron-d6	64.4	P	30 - 160
EPA 8321B	Primidone-d5	99.3	P	30 - 160
EPA 8321B	Sucralose-d6	68.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	92.3	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	90.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	82.7	P	30 - 160
USGS O-2060-01	Diuron-d6	64.4	P	30 - 160
USGS O-2060-01	Primidone-d5	99.3	P	30 - 160
USGS O-2060-01	Sucralose-d6	68.6	P	40 - 160

Lab Sample ID: 1920957
 Field Sample ID: G5SW0055

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	90.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	83.1	P	30 - 160
EPA 8321B	Diuron-d6	71.2	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	68.3	P	40 - 160
USGS O-2060-01	2,4-D-d3	101	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	90.9	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	83.1	P	30 - 160
USGS O-2060-01	Diuron-d6	71.2	P	30 - 160
USGS O-2060-01	Primidone-d5	110	P	30 - 160
USGS O-2060-01	Sucralose-d6	68.3	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A78360
 Included Lab Sample IDs: 1920930, 1920931, 1920932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.2	96.1	P/P	90 - 110
O-Phosphate-P	97.8	98.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A78365

Included Lab Sample IDs: 1920924, 1920925, 1920926

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

Reference Method: SM 2320 B-97

Run ID: A78396

Included Lab Sample IDs: 1920924, 1920925, 1920926

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78424

Included Lab Sample IDs: 1920927, 1920928, 1920929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78431

Included Lab Sample IDs: 1920927, 1920928

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78446

Included Lab Sample IDs: 1920927, 1920928, 1920929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78450

Included Lab Sample IDs: 1920927, 1920928, 1920929

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

Reference Method: SM 4500 F-C-97

Run ID: A78465

Included Lab Sample IDs: 1920924, 1920925, 1920926

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A78471

Included Lab Sample IDs: 1920927, 1920928, 1920929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A78471

Included Lab Sample IDs: 1920927, 1920928, 1920929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78474

Included Lab Sample IDs: 1920929

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

Reference Method: USGS O-2060-01

Run ID: A78596

Included Lab Sample IDs: 1920954, 1920955, 1920956, 1920957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	80.7	83.7	P/P	50 - 150
2,4-D	83.7	85.1	P/P	50 - 150
Acetaminophen	77.2	78.9	P/P	60 - 150
Acetaminophen	78.9	76.3	P/P	60 - 150
Bentazon	96.0	98.2	P/P	50 - 150
Bentazon	96.2	96.0	P/P	50 - 150
Carbamazepine	81.4	79.3	P/P	60 - 150
Carbamazepine	82.0	81.4	P/P	60 - 150
Diuron	86.7	90.6	P/P	60 - 150
Diuron	90.6	86.6	P/P	60 - 150
Fenuron	88.5	89.6	P/P	60 - 150
Fenuron	89.6	88.5	P/P	60 - 150
Fluridone	95.6	97.0	P/P	60 - 160
Fluridone	97.1	95.6	P/P	60 - 160
Imidacloprid	74.5	75.6	P/P	60 - 150
Imidacloprid	75.6	74.8	P/P	60 - 150
Linuron	97.2	92.8	P/P	60 - 150
Linuron	99.0	97.2	P/P	60 - 150
MCP	63.8	65.0	P/P	50 - 150
MCP	65.3	63.8	P/P	50 - 150
Primidone	81.8	83.1	P/P	60 - 150
Primidone	83.1	80.3	P/P	60 - 150
Triclopyr	65.0	68.8	P/P	50 - 150
Triclopyr	72.8	65.0	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A78750

Included Lab Sample IDs: 1920954, 1920955, 1920956, 1920957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	113	115	P/P	60 - 150
Sucralose	115	115	P/P	60 - 150

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					3.20	
EPA 350.1 Rev. 2.0	Ammonia-N	101	95.5	96.3			0.492
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.8	100	102			1.26
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	106	108	107			0.930
	NO ₂ NO ₃ -N	106	106	106			0.289
EPA 365.1 Rev. 2.0	Total-P	96.9	99.2	92.2			6.90
	Total-P	97.0	92.0	100			8.58
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	93.9	95.2			1.31
EPA 8321B	Sucralose	119					7.89
SM 2320 B-97	Total Alkalinity	103				0.0123	
SM 2540 D-97	TSS					8.00	
SM 4500 F-C-97	Fluoride	98.3	97.5	99.5			0.946
SM 5310 B-00	Organic Carbon	92.6					0.235
USGS O-2060-01	2,4-D	75.7	81.6	85.6			4.78
	Acetaminophen	93.1	92.9	93.9			1.06
	Bentazon	67.3	42.9	45.4			5.63
	Carbamazepine	101	96.8	99.2			2.44
	Diuron	96.6	78.5	82.9			5.43
	Fenuron	89.9	84.2	107			23.9
	Fluridone	86.6	65.4	76.1			15.1
	Imidacloprid	69.0	165	178			7.63
	Linuron	83.2	82.8	93.1			11.7
	MCP	73.5	59.0	63.1			6.66
	Primidone	85.1	105	113			7.89
	Triclopyr	67.8	56.1	63.7			12.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1920924, 1920925, 1920926
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1920927, 1920928, 1920929
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1920927, 1920928, 1920929
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1920927, 1920928, 1920929
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1920927, 1920928, 1920929
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1920930, 1920931, 1920932
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1920954, 1920955, 1920956, 1920957
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1920924, 1920925, 1920926
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1920924, 1920925, 1920926
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1920924, 1920925, 1920926
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1920927, 1920928, 1920929
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1920954, 1920955, 1920956, 1920957
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1920954, 1920955, 1920956, 1920957

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	08/11/2017			08/11/2017 15:25	DeAsia Armster	1920924, 1920925, 1920926
EPA 350.1 Rev. 2.0	08/11/2017			08/16/2017	Sofia Elnemr	1920927, 1920928, 1920929
EPA 351.2 Rev. 2.0	08/11/2017	08/15/2017	Adrian Shelby	08/16/2017	Joseph Suarez	1920927, 1920928, 1920929
EPA 353.2 Rev. 2.0	08/11/2017			08/16/2017	Beverly Y. Sanders	1920927, 1920928, 1920929
EPA 365.1 Rev. 2.0	08/11/2017	08/15/2017	Sima Feizi	08/16/2017	Lipi Saha	1920927, 1920928, 1920929
EPA 365.1 Rev. 2.0 dissolved	08/11/2017			08/11/2017 14:46	Anthony C. Onicha	1920931
	08/11/2017			08/11/2017 14:47	Anthony C. Onicha	1920932
	08/11/2017			08/11/2017 15:07	Anthony C. Onicha	1920930
EPA 8321B	08/11/2017	08/24/2017	Julie Michelle Frank	08/30/2017	Julie Michelle Frank	1920954, 1920955, 1920956, 1920957
SM 2320 B-97	08/11/2017			08/14/2017	Dale L. Simmons	1920924, 1920925, 1920926
SM 2540 D-97	08/11/2017			08/14/2017	Yijie Li	1920924, 1920925, 1920926
SM 4500 F-C-97	08/11/2017			08/17/2017	Dale L. Simmons	1920924, 1920925, 1920926
SM 5310 B-00	08/11/2017			08/17/2017	Ping Hua	1920927, 1920928, 1920929
USGS O-2060-01	08/11/2017	08/15/2017	Hoor Shaik	08/19/2017	Juyoung Kim	1920954, 1920955, 1920956, 1920957