

Chemical Analysis Report

WQAP-2017-06-13-01

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

Event Description: **RUN 4**
Request ID: **RQ-2017-06-12-41**
Customer: **WQAP**
Project ID: **SMP**

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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 06-JUL-2017 12:51



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: PASADENA

Collection Date/Time: 06/12/2017 09:40

Field ID: G5SW0119

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905498	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P326751	
	EPA 300.0 Rev. 2.1	Chloride	72		mg Cl/L	P327033	
		Sulfate	9.7		mg SO4/L	P327037	
	SM 2120 B	Color (true)	44		PCU	P326739	
	SM 2320 B-97	Total Alkalinity	63		mg CaCO3/L	P326900	
	SM 2540 C-97	TDS	254		mg/L	P327121	
	SM 2540 D-97	TSS	38		mg/L	P327087	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P326906	
1905500	EPA 350.1 Rev. 2.0	Ammonia-N	0.011	J	mg N/L	P326811	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.4		mg N/L	P326914	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P326758	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P326757	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P326871	
1905502	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P326746	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: The sample appears to be heterogeneous with respect to ammonia analysis.

Sample Location: PP DITCH #5

Collection Date/Time: 06/12/2017 10:30

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905499	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P326751	
	EPA 300.0 Rev. 2.1	Chloride	52		mg Cl/L	P327034	
		Sulfate	14		mg SO4/L	P327083	
	SM 2120 B	Color (true)	28		PCU	P326739	
	SM 2320 B-97	Total Alkalinity	88		mg CaCO3/L	P326900	
	SM 2540 C-97	TDS	234	A	mg/L	P327121	
	SM 2540 D-97	TSS	56	A	mg/L	P327087	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P326906	
1905501	EPA 350.1 Rev. 2.0	Ammonia-N	0.013	J	mg N/L	P326974	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P326914	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P326758	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P326803	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P326871	
1905503	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P326746	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: The sample appears to be heterogeneous with respect to ammonia analysis.

Sample Location: PP DITCH #5

Collection Date/Time: 06/12/2017 10:30

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905508	EPA 8321B	Sucralose**	1.1		ug/L	P326632	
	USGS O-2060-01	2,4-D	0.0038		ug/L	P326684	
		Diuron	0.0050		ug/L	P326684	

Field ID: G5SW0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1905508	USGS O-2060-01	Fenuron	0.0040	U	ug/L	P326684	RPD
		Imidacloprid	0.022		ug/L	P326684	
		Bentazon	0.0046		ug/L	P326684	
		Linuron	0.0040	U	ug/L	P326684	
		Acetaminophen**	0.0080	U	ug/L	P326684	
		MCP	0.0020	U	ug/L	P326684	
		Carbamazepine**	0.0013	I	ug/L	P326684	
		Triclopyr**	0.0040	U	ug/L	P326684	
		Primidone**	0.0061	I	ug/L	P326684	
		Fluridone**	4.0E-04	U	ug/L	P326684	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P326751

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327033

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327034

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327037

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P327083

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P326811

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326974

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326914

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326758

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326757

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326803

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326746

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

Reference Method: EPA 8321B
Batch ID: P326632

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P326739

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P326900

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P327121

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327087

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P326906

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P326871

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

Reference Method: USGS O-2060-01
Batch ID: P326684

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	0.0040	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327033

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327034

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327037

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326811

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326974

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326914

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326758

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326757

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326803

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326746

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P326632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	83.0		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P326900

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

Reference Method: SM 4500 F-C-97
Batch ID: P326906

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P326871

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

Reference Method: USGS O-2060-01
Batch ID: P326684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	75.8		P	40 - 140
Acetaminophen	42.9		P	40 - 140
Bentazon	68.2		P	40 - 140
Carbamazepine	118		P	40 - 140
Diuron	109		P	40 - 140
Fenuron	105		P	40 - 140
Fluridone	108		P	40 - 140
Imidacloprid	96.7		P	40 - 160
Linuron	103		P	40 - 140
MCPP	79.6		P	40 - 140
Primidone	100		P	40 - 140
Triclopyr	79.0		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904975	Chloride	102		P	90 - 110
1905441	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905651	Chloride	106		P	90 - 110
1905675	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904975	Sulfate	98.1		P	90 - 110
1905441	Sulfate	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905651	Sulfate	98.5		P	90 - 110
1905675	Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905447	Ammonia-N	97.4	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906109	Ammonia-N	98.2	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905860	Kjeldahl Nitrogen	98.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905442	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1904380	Total-P	103	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905600	Total-P	104	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P326746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905502	O-Phosphate-P	94.7	96.7	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P326632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905341	Sucralose	82.0	77.5	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P326906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905717	Fluoride	100	96.3	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P326871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905300	Organic Carbon	99.1	96.2	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P326684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905398	2,4-D	72.8	74.8	P/P	40 - 140
1905398	Acetaminophen	82.7	72.5	P/P	40 - 140
1905398	Bentazon	56.0	56.0	P/P	40 - 140
1905398	Carbamazepine	137	135	P/P	40 - 140
1905398	Diuron	117	117	P/P	40 - 140
1905398	Fenuron	92.2	64.2	P/P	40 - 140
1905398	Fluridone	117	116	P/P	40 - 140
1905398	Imidacloprid	123	120	P/P	40 - 160
1905398	Linuron	121	123	P/P	40 - 140
1905398	MCP	74.0	78.0	P/P	40 - 140
1905398	Primidone	127	119	P/P	40 - 140
1905398	Triclopyr	72.4	79.8	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P326751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905441	Turbidity	5.87	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904975	Chloride	0.330	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905675	Chloride	4.82	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904975	Sulfate	2.51	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905651	Sulfate	0.955	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905447	Ammonia-N	0.256	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906109	Ammonia-N	0.248	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P326914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905860	Kjeldahl Nitrogen	1.36	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P326758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905442	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1904380	Total-P	3.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P326803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905600	Total-P	2.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P326746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905502	O-Phosphate-P	1.99	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P326632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905341	Sucralose	5.47	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P326739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905441	Color (true)	0.0911	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P326900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905717	Total Alkalinity	0.799	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P327121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905499	TDS	3.00	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P327087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905499	TSS	7.89	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P326906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905717	Fluoride	2.41	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P326871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905300	Organic Carbon	2.01	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P326684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1905398	2,4-D	2.42	Spike	P	0 - 30
1905398	Acetaminophen	13.1	Spike	P	0 - 30
1905398	Bentazon	0.0	Spike	P	0 - 30
1905398	Carbamazepine	1.59	Spike	P	0 - 30
1905398	Diuron	0.135	Spike	P	0 - 30
1905398	Fenuron	35.9	Spike	F	0 - 30
1905398	Fluridone	1.08	Spike	P	0 - 30
1905398	Imidacloprid	2.34	Spike	P	0 - 30
1905398	Linuron	1.83	Spike	P	0 - 30
1905398	MCPP	5.26	Spike	P	0 - 30
1905398	Primidone	6.43	Spike	P	0 - 30
1905398	Triclopyr	9.72	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: 1905508
Field Sample ID: G5SW0118

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	126	P	40 - 160
USGS O-2060-01	2,4-D-d3	69.0	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	106	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	101	P	30 - 160
USGS O-2060-01	Diuron-d6	69.4	P	30 - 160
USGS O-2060-01	Primidone-d5	92.6	P	30 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A77059

Included Lab Sample IDs: 1905498, 1905499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	91.9	98.2	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77060

Included Lab Sample IDs: 1905502, 1905503

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77064

Included Lab Sample IDs: 1905498, 1905499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77069

Included Lab Sample IDs: 1905500, 1905501

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77076

Included Lab Sample IDs: 1905498, 1905499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	98.7	P/P	90 - 110
Chloride	98.7	104	P/P	90 - 110
Sulfate	101	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77085

Included Lab Sample IDs: 1905500

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

Reference Method: SM 5310 B-00

Run ID: A77100

Included Lab Sample IDs: 1905500, 1905501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A77101
Included Lab Sample IDs: 1905500, 1905501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	103	P/P	90 - 110
Total-P	103	104	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A77119
Included Lab Sample IDs: 1905498, 1905499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A77119
Included Lab Sample IDs: 1905498, 1905499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.3	96.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77139
Included Lab Sample IDs: 1905501

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A77177
Included Lab Sample IDs: 1905500, 1905501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A77183
Included Lab Sample IDs: 1905499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	109	105	P/P	90 - 110

Reference Method: USGS O-2060-01
Run ID: A77208
Included Lab Sample IDs: 1905508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	83.2	78.4	P/P	50 - 150
Acetaminophen	89.8	94.6	P/P	60 - 150
Bentazon	97.2	94.0	P/P	50 - 150
Carbamazepine	103	108	P/P	60 - 150
Diuron	96.0	99.3	P/P	60 - 150
Fenuron	94.6	98.6	P/P	60 - 150
Fluridone	97.3	96.4	P/P	60 - 160
Imidacloprid	96.8	91.1	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
 Run ID: A77208
 Included Lab Sample IDs: 1905508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Linuron	98.3	91.0	P/P	60 - 150
MCP	72.8	74.4	P/P	50 - 150
Primidone	91.9	100	P/P	60 - 150
Triclopyr	76.0	76.0	P/P	50 - 150

Reference Method: EPA 8321B
 Run ID: A77273
 Included Lab Sample IDs: 1905508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	103	85.8	P/P	60 - 160

* 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				5.87	
EPA 300.0 Rev. 2.1	Chloride	104	102 106		0.330	
	Chloride	104	105 106		4.82	
	Sulfate	104	98.1 103		2.51	
	Sulfate	98.2	98.5 97.3		0.955	
EPA 350.1 Rev. 2.0	Ammonia-N	101	97.4 97.1			0.256
	Ammonia-N	103	98.2 98.5			0.248
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	98.8 101			1.36
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102 102			0.0
EPA 365.1 Rev. 2.0	Total-P	103	103 99.3			3.45
	Total-P	103	104 100			2.11
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	94.7 96.7			1.99
EPA 8321B	Sucralose	83.0	82.0 77.5			5.47
SM 2120 B	Color (true)				0.0911	
SM 2320 B-97	Total Alkalinity	103			0.799	
SM 2540 C-97	TDS				3.00	
SM 2540 D-97	TSS				7.89	
SM 4500 F-C-97	Fluoride	95.4	100 96.3			2.41
SM 5310 B-00	Organic Carbon	94.1	99.1 96.2			2.01
USGS O-2060-01	2,4-D	75.8	72.8 74.8			2.42
	Acetaminophen	42.9	82.7 72.5			13.1
	Bentazon	68.2	56.0 56.0			0.0
	Carbamazepine	118	137 135			1.59
	Diuron	109	117 117			0.135
	Fenuron	105	92.2 64.2			35.9
	Fluridone	108	117 116			1.08
	Imidacloprid	96.7	123 120			2.34
	Linuron	103	121 123			1.83
	MCP	79.6	74.0 78.0			5.26

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
USGS O-2060-01	Primidone	100	127	119		6.43
	Triclopyr	79.0	72.4	79.8		9.72

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1905498, 1905499
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1905498, 1905499
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1905498, 1905499
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1905500, 1905501
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1905500, 1905501
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1905500, 1905501
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1905500, 1905501
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1905502, 1905503
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1905508
SM 2120 B / E31780	True Color measured at 450 nm	1905498, 1905499
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1905498, 1905499
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1905498, 1905499
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1905498, 1905499
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1905498, 1905499
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1905500, 1905501
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1905508
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1905508

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	06/13/2017			06/13/2017 17:34	Blanca Fach	1905498, 1905499
EPA 300.0 Rev. 2.1	06/13/2017			06/17/2017	Julia Storbeck	1905498
	06/13/2017			06/19/2017	Julia Storbeck	1905499
EPA 350.1 Rev. 2.0	06/13/2017			06/14/2017	Sofia Elnemr	1905500
	06/13/2017			06/15/2017	Sofia Elnemr	1905501
EPA 351.2 Rev. 2.0	06/13/2017	06/15/2017	Adrian Shelby	06/19/2017	Tanya Welborn	1905500, 1905501
EPA 353.2 Rev. 2.0	06/13/2017			06/14/2017	Beverly Y. Sanders	1905500, 1905501
EPA 365.1 Rev. 2.0	06/13/2017	06/14/2017	Vijayalakshmi Reddy	06/15/2017	Lipi Saha	1905500, 1905501
EPA 365.1 Rev. 2.0 dissolved	06/13/2017			06/13/2017 14:51	Anthony C. Onicha	1905502
	06/13/2017			06/13/2017 15:18	Anthony C. Onicha	1905503
EPA 8321B	06/13/2017	06/15/2017	Mohammad Ghaffari	06/21/2017	Mohammad Ghaffari	1905508
SM 2120 B	06/13/2017			06/13/2017 17:41	Tanya Welborn	1905498
	06/13/2017			06/13/2017 17:42	Tanya Welborn	1905499
SM 2320 B-97	06/13/2017			06/14/2017	Dale L. Simmons	1905498, 1905499
SM 2540 C-97	06/13/2017			06/14/2017	Yijie Li	1905498, 1905499
SM 2540 D-97	06/13/2017			06/14/2017	Yijie Li	1905498, 1905499
SM 4500 F-C-97	06/13/2017			06/14/2017	Dale L. Simmons	1905498, 1905499
SM 5310 B-00	06/13/2017			06/14/2017	Christopher Armour	1905500, 1905501
USGS O-2060-01	06/13/2017	06/15/2017	Hoor Shaik	06/18/2017	Juyoung Kim	1905508