

Chemical Analysis Report

WQAP-2017-10-03-01

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

Event Description: **SMP RUN, Streams**
Request ID: **RQ-2017-10-02-57**
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: 18-OCT-2017 10:11



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: NEW RIVER

Collection Date/Time: 10/02/2017 09:25

Field ID: G2SW0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933329	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P332679	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P332900	
		Sulfate	0.62		mg SO4/L	P332904	
	SM 2120 B	Color (true)	260		PCU	P332652	
	SM 2320 B-97	Total Alkalinity	26		mg CaCO3/L	P332840	
	SM 2540 C-97	TDS	92		mg/L	P333016	
	SM 2540 D-97	TSS	3	I	mg/L	P332952	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P332843	
1933332	EPA 350.1 Rev. 2.0	Ammonia-N	0.082		mg N/L	P332933	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P332746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P332863	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P332707	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P332873	
1933335	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P332687	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BELOWS OUTLET

Collection Date/Time: 10/02/2017 10:17

Field ID: G1SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933330	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P332679	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P332900	
		Sulfate	6.3		mg SO4/L	P332904	
	SM 2120 B	Color (true)	57		PCU	P332652	
	SM 2320 B-97	Total Alkalinity	62	A	mg CaCO3/L	P332840	
	SM 2540 C-97	TDS	103		mg/L	P333016	
	SM 2540 D-97	TSS	8	I	mg/L	P332952	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P332843	
1933333	EPA 350.1 Rev. 2.0	Ammonia-N	0.57		mg N/L	P333175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P332746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P332864	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P332747	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P332873	
1933336	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P332688	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BELOWS OUTLET

Collection Date/Time: 10/02/2017 10:17

Field ID: G1SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933351	EPA 8321B	Sucralose**	0.084		ug/L	P332452	

Field ID: G1SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933351	USGS O-2060-01	2,4-D	0.34		ug/L	P332453	
		Diuron	0.014		ug/L	P332453	
		Fenuron	0.0080	U	ug/L	P332453	
		Imidacloprid	0.039		ug/L	P332453	
		Bentazon	8.0E-04	U	ug/L	P332453	MS
		Linuron	0.0040	U	ug/L	P332453	
		Acetaminophen**	0.041		ug/L	P332453	
		MCP	0.0020	U	ug/L	P332453	
		Carbamazepine**	4.0E-04	U	ug/L	P332453	
		Triclopyr**	0.0040	U	ug/L	P332453	
		Primidone**	0.0040	U	ug/L	P332453	
		Fluridone**	0.0089		ug/L	P332453	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: MUSTANG RANCH

Collection Date/Time: 10/02/2017 11:10

Field ID: G2SW0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933331	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P332679	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P332900	
		Sulfate	9.8		mg SO4/L	P332904	
	SM 2120 B	Color (true)	180		PCU	P332652	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P332840	
	SM 2540 C-97	TDS	92		mg/L	P333016	
	SM 2540 D-97	TSS	8	I	mg/L	P332952	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P332843	
1933334	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P332934	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P332785	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P332864	
	EPA 365.1 Rev. 2.0	Total-P	0.91		mg P/L	P332747	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P332873	
1933337	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.67		mg P/L	P332688	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P332679

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332900

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332904

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332933

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332934

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333175

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332746

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332785

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332863

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332864

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332707

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332747

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332688

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

Reference Method: EPA 8321B
Batch ID: P332452

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P332652

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P332840

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

Reference Method: SM 2540 C-97
Batch ID: P333016

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P332952

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
 Batch ID: P332843

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P332873

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

Reference Method: USGS O-2060-01
 Batch ID: P332453

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P332933

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: P332934

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333175

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332746

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332785

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332863

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: P332864

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332747

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332688

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P332452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	77.3		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P332840

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P332843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P332873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P332453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	69.0		P	40 - 150
Acetaminophen	99.8		P	30 - 150
Bentazon	45.4		P	40 - 150
Carbamazepine	110		P	40 - 150
Diuron	99.9		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	101		P	40 - 150
Imidacloprid	99.9		P	40 - 160
Linuron	98.8		P	40 - 150
MCPP	68.5		P	40 - 150
Primidone	103		P	40 - 150
Triclopyr	68.9		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933438	Chloride	96.8		P	90 - 110
1933439	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332904

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: P332904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933438	Sulfate	94.8		P	90 - 110
1933439	Sulfate	93.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933158	Ammonia-N	96.9	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933334	Ammonia-N	98.6	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933766	Ammonia-N	99.8	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933168	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933334	NO2NO3-N	110	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933271	Total-P	99.1	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933333	Total-P	98.1	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933169	O-Phosphate-P	98.3	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P332688

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933343	O-Phosphate-P	99.7	101	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P332452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932875	Sucralose	149	85.4	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P332843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933330	Fluoride	98.2	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P332873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933158	Organic Carbon	98.1	99.3	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P332453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932874	2,4-D	62.2	67.3	P/P	40 - 150
1932874	Acetaminophen	76.5	84.4	P/P	30 - 150
1932874	Bentazon	30.0	36.6	F/F	40 - 150
1932874	Carbamazepine	80.6	84.2	P/P	40 - 150
1932874	Diuron	63.6	64.9	P/P	40 - 150
1932874	Fenuron	77.9	83.3	P/P	40 - 150
1932874	Fluridone	59.2	50.5	P/P	40 - 150
1932874	Linuron	86.6	88.2	P/P	40 - 150
1932874	MCP	50.8	53.2	P/P	40 - 150
1932874	Primidone	86.2	87.6	P/P	40 - 150
1932874	Triclopyr	47.3	48.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P332679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933253	Turbidity	0.573	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933438	Chloride	0.371	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933438	Sulfate	0.668	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933158	Ammonia-N	0.580	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933334	Ammonia-N	1.83	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933766	Ammonia-N	0.250	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933332	Kjeldahl Nitrogen	0.302	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933446	Kjeldahl Nitrogen	1.29	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933168	NO2NO3-N	0.438	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933334	NO2NO3-N	7.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933271	Total-P	3.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933333	Total-P	1.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933169	O-Phosphate-P	2.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933343	O-Phosphate-P	0.899	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P332452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932875	Sucralose	27.7	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P332652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933255	Color (true)	1.07	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P332840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933330	Total Alkalinity	0.352	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P333016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932987	TDS	5.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P332843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933330	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P332873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933158	Organic Carbon	0.865	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P332453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932874	2,4-D	7.10	Spike	P	0 - 30
1932874	Acetaminophen	9.89	Spike	P	0 - 30
1932874	Bentazon	7.20	Spike	P	0 - 30
1932874	Carbamazepine	4.42	Spike	P	0 - 30
1932874	Diuron	1.06	Spike	P	0 - 30
1932874	Fenuron	6.75	Spike	P	0 - 30
1932874	Fluridone	10.3	Spike	P	0 - 30
1932874	Imidacloprid	2.85	Spike	P	0 - 30
1932874	Linuron	1.78	Spike	P	0 - 30
1932874	MCP	4.73	Spike	P	0 - 30
1932874	Primidone	1.63	Spike	P	0 - 30
1932874	Triclopyr	2.79	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: 1933351
 Field Sample ID: G1SW0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	87.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	87.5	P	30 - 160
EPA 8321B	Diuron-d6	63.1	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	93.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	69.7	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1933351
 Field Sample ID: G1SW0060

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Acetaminophen-d4	87.6	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	87.5	P	30 - 160
USGS O-2060-01	Diuron-d6	63.1	P	30 - 160
USGS O-2060-01	Primidone-d5	102	P	30 - 160
USGS O-2060-01	Sucralose-d6	93.8	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
 Run ID: A79311
 Included Lab Sample IDs: 1933329, 1933330, 1933331

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	101	P/P	85 - 115
Color (true)	99.9	99.5	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A79320
 Included Lab Sample IDs: 1933329, 1933330, 1933331

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A79323
 Included Lab Sample IDs: 1933335, 1933336, 1933337

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	98.1	P/P	90 - 110
O-Phosphate-P	98.1	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A79350
 Included Lab Sample IDs: 1933332

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

Reference Method: SM 2320 B-97
 Run ID: A79374
 Included Lab Sample IDs: 1933329, 1933330, 1933331

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Run ID: A79374
 Included Lab Sample IDs: 1933329, 1933330, 1933331

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

Reference Method: SM 4500 F-C-97

Run ID: A79374

Included Lab Sample IDs: 1933329, 1933330, 1933331

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

Reference Method: USGS O-2060-01

Run ID: A79377

Included Lab Sample IDs: 1933351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	105	107	P/P	50 - 150
Acetaminophen	105	103	P/P	60 - 150
Bentazon	118	112	P/P	50 - 150
Carbamazepine	109	110	P/P	60 - 150
Diuron	100	107	P/P	60 - 150
Fenuron	102	104	P/P	60 - 150
Fluridone	105	103	P/P	60 - 160
Imidacloprid	96.9	97.0	P/P	60 - 150
Linuron	103	102	P/P	60 - 150
MCPP	96.8	97.2	P/P	50 - 150
Primidone	84.0	95.6	P/P	60 - 150
Triclopyr	101	99.8	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79383

Included Lab Sample IDs: 1933332, 1933333, 1933334

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

Reference Method: SM 5310 B-00

Run ID: A79389

Included Lab Sample IDs: 1933332, 1933333, 1933334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79393

Included Lab Sample IDs: 1933332, 1933333, 1933334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	106	P/P	90 - 110
Kjeldahl Nitrogen	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79396

Included Lab Sample IDs: 1933333, 1933334

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79401

Included Lab Sample IDs: 1933329, 1933330, 1933331

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	105	P/P	90 - 110
Sulfate	99.0	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79410

Included Lab Sample IDs: 1933332, 1933334

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

Reference Method: EPA 8321B

Run ID: A79445

Included Lab Sample IDs: 1933351

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	107	P/P	60 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79489

Included Lab Sample IDs: 1933333

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

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.573	
EPA 300.0 Rev. 2.1	Chloride	97.7	96.8	97.2		0.371	
	Sulfate	94.5	94.8	93.8		0.668	
EPA 350.1 Rev. 2.0	Ammonia-N	101	96.9	96.2			0.580
	Ammonia-N	102	98.6	105			1.83
	Ammonia-N	99.4	99.8	99.5			0.250
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					0.302
	Kjeldahl Nitrogen	104					1.29
EPA 353.2 Rev. 2.0	NO2NO3-N	106	103	103			0.438
	NO2NO3-N	106	110	96.0			7.24
EPA 365.1 Rev. 2.0	Total-P	97.7	99.1	95.2			3.65
	Total-P	100	98.1	100			1.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	98.3	101			2.61
	O-Phosphate-P	102	99.7	101			0.899
EPA 8321B	Sucralose	77.3	149	85.4			27.7
SM 2120 B	Color (true)					1.07	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 2320 B-97	Total Alkalinity	101				0.352	
SM 2540 C-97	TDS					5.59	
SM 4500 F-C-97	Fluoride	96.8	98.2	98.2			0.0
SM 5310 B-00	Organic Carbon	96.0	98.1	99.3			0.865
USGS O-2060-01	2,4-D	69.0	62.2	67.3			7.10
	Acetaminophen	99.8	76.5	84.4			9.89
	Bentazon	45.4	30.0	36.6			7.20
	Carbamazepine	110	80.6	84.2			4.42
	Diuron	99.9	63.6	64.9			1.06
	Fenuron	104	77.9	83.3			6.75
	Fluridone	101	59.2	50.5			10.3
	Imidacloprid	99.9					2.85
	Linuron	98.8	86.6	88.2			1.78
	MCPP	68.5	50.8	53.2			4.73
	Primidone	103	86.2	87.6			1.63
	Triclopyr	68.9	47.3	48.7			2.79

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1933329, 1933330, 1933331
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1933329, 1933330, 1933331
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1933329, 1933330, 1933331
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1933332, 1933333, 1933334
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1933332, 1933333, 1933334
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1933332, 1933333, 1933334
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1933332, 1933333, 1933334
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1933335, 1933336, 1933337
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1933351
SM 2120 B / E31780	True Color measured at 450 nm	1933329, 1933330, 1933331
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1933329, 1933330, 1933331
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1933329, 1933330, 1933331
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1933329, 1933330, 1933331
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1933329, 1933330, 1933331
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1933332, 1933333, 1933334
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1933351
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1933351

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	10/03/2017			10/03/2017 15:52	DeAsia Armster	1933329, 1933330, 1933331
EPA 300.0 Rev. 2.1	10/03/2017			10/05/2017	Julia Storbeck	1933329, 1933330, 1933331
EPA 350.1 Rev. 2.0	10/03/2017			10/06/2017	Sofia Elnemr	1933332, 1933334
	10/03/2017			10/10/2017	Sofia Elnemr	1933333
EPA 351.2 Rev. 2.0	10/03/2017	10/05/2017	Adrian Shelby	10/06/2017	Virginia P. Brown	1933332, 1933333, 1933334
EPA 353.2 Rev. 2.0	10/03/2017			10/06/2017	Beverly Y. Sanders	1933332, 1933333, 1933334
EPA 365.1 Rev. 2.0	10/03/2017	10/04/2017	Sima Feizi	10/05/2017	Lipi Saha	1933332
	10/03/2017	10/05/2017	Sima Feizi	10/06/2017	Lipi Saha	1933333, 1933334
EPA 365.1 Rev. 2.0 dissolved	10/03/2017			10/03/2017 15:16	Megan Treadwell	1933336
	10/03/2017			10/03/2017 15:17	Megan Treadwell	1933337
	10/03/2017			10/03/2017 15:28	Megan Treadwell	1933335
EPA 8321B	10/03/2017	10/04/2017	Hoor Shaik	10/06/2017	Juyoung Kim	1933351
SM 2120 B	10/03/2017			10/03/2017 14:31	Tanya Welborn	1933330
	10/03/2017			10/03/2017 15:00	Tanya Welborn	1933329
	10/03/2017			10/03/2017 15:01	Tanya Welborn	1933331
SM 2320 B-97	10/03/2017			10/05/2017	Dale L. Simmons	1933329, 1933330, 1933331
SM 2540 C-97	10/03/2017			10/04/2017	Yijie Li	1933329, 1933330, 1933331
SM 2540 D-97	10/03/2017			10/04/2017	Yijie Li	1933329, 1933330, 1933331
SM 4500 F-C-97	10/03/2017			10/05/2017	Dale L. Simmons	1933329, 1933330, 1933331
SM 5310 B-00	10/03/2017			10/06/2017	Ping Hua	1933332, 1933333, 1933334
USGS O-2060-01	10/03/2017	10/04/2017	Hoor Shaik	10/08/2017	Julie Michelle Frank	1933351