

Chemical Analysis Report

WQAP-2018-05-01-01

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

Event Description: **Dup & Blank**
Request ID: **RQ-2018-04-30-81**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 25-MAY-2018 10:44

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: TURKEY CREEK @ SR 60

Collection Date/Time: 04/30/2018 09:05

Field ID: G2SW0051_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988970	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P344418	
	EPA 300.0 Rev. 2.1	Chloride	140		mg Cl/L	P344848	
		Sulfate	97		mg SO4/L	P344851	
	SM 2120 B	Color (true)	31		PCU	P344397	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P345070	
	SM 2540 C-97	TDS	563		mg/L	P344886	
	SM 2540 D-97	TSS	3	I	mg/L	P344891	
	SM 4500 F-C-97	Fluoride	0.61		mg F/L	P345074	
1988972	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P344869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P344572	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.59		mg N/L	P344485	
	EPA 365.1 Rev. 2.0	Total-P	0.61		mg P/L	P344582	
	SM 5310 B-00	Organic Carbon	7.1		mg C/L	P345023	
1988974	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.56		mg P/L	P344437	
1988982	EPA 8321B	2,4-D	0.046		ug/L	P344412	
		Sucralose**	80		ug/L	P344375	
		Bentazon	0.044		ug/L	P344412	
		MCP	0.053		ug/L	P344412	
		Triclopyr**	0.0040	U	ug/L	P344412	
		Imidacloprid	0.10		ug/L	P344412	MS
		Diuron	0.025		ug/L	P344412	
		Pyraclostrobin**	0.0020	U	ug/L	P344412	
		Primidone**	0.36		ug/L	P344412	
		Linuron	0.0040	U	ug/L	P344412	
		Acetaminophen**	0.0080	U	ug/L	P344412	
		Fenuron	0.016	U	ug/L	P344412	
		Imazapyr**	0.0088	I	ug/L	P344412	
		Carbamazepine**	0.25		ug/L	P344412	
		Fluridone**	8.0E-04	U	ug/L	P344412	
		Hydrocodone**	0.039		ug/L	P344412	
		Glyphosate**	0.20	I	ug/L	P344375	MS
		AMPA**	0.51		ug/L	P344375	MS
		Endothall**	0.10	U	ug/L	P344375	
		Glufosinate**	0.10	U	ug/L	P344375	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Field Blank_04302018

Collection Date/Time: 04/30/2018 09:10

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988971	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P344418	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P344848	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1988971	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P344851	
	SM 2120 B	Color (true)	2.5	U	PCU	P344397	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P345071	
	SM 2540 C-97	TDS	15	U	mg/L	P344883	
	SM 2540 D-97	TSS	2	U	mg/L	P344888	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P345075	
1988973	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P344869	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P344572	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344486	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P344582	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P345023	
1988975	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344438	
1988983	EPA 8321B	2,4-D	0.0020	U	ug/L	P344412	
		Bentazon	8.0E-04	U	ug/L	P344412	
		MCPP	0.0020	U	ug/L	P344412	
		Triclopyr**	0.0040	U	ug/L	P344412	
		Imidacloprid	0.0020	U	ug/L	P344412	MS
		Diuron	0.0020	U	ug/L	P344412	
		Pyraclostrobin**	0.0020	U	ug/L	P344412	
		Primidone**	0.0040	U	ug/L	P344412	
		Linuron	0.0040	U	ug/L	P344412	
		Acetaminophen**	0.0080	U	ug/L	P344412	
		Fenuron	0.016	U	ug/L	P344412	
		Imazapyr**	0.0040	U	ug/L	P344412	
		Carbamazepine**	4.0E-04	U	ug/L	P344412	
		Fluridone**	8.0E-04	U	ug/L	P344412	
		Hydrocodone**	8.0E-04	U	ug/L	P344412	
		Sucralose**	0.10	U	ug/L	P344375	
		Glyphosate**	0.10	U	ug/L	P344375	MS
		AMPA**	0.10	U	ug/L	P344375	MS
		Endothal**	0.10	U	ug/L	P344375	
		Glufosinate**	0.10	U	ug/L	P344375	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P344418

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: P344848

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344851

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344869

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344572

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344485

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344486

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344582

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344437

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344438

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P344375

Component	Result	Code	Units
AMPA	0.10	U	ug/L
Endothall	0.10	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.10	U	ug/L
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P344412

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	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P344397

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P345070

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

Reference Method: SM 2320 B-97
Batch ID: P345071

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

Reference Method: SM 2540 C-97
Batch ID: P344883

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P344886

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344888

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P344891

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345074

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P345075

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P345023

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344848

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344851

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344869

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344869

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344572

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344582

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.8		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P344375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
AMPA	100		P	40 - 140
Endothall	103		P	40 - 140
Glufosinate	99.2		P	40 - 140
Glyphosate	94.7		P	40 - 140
Sucralose	100	100	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344412

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

Reference Method: EPA 8321B
Batch ID: P344412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	95.1		P	40 - 150
Acetaminophen	106		P	30 - 150
Bentazon	95.6		P	30 - 150
Carbamazepine	109		P	40 - 150
Diuron	97.6		P	40 - 150
Fenuron	127		P	40 - 150
Fluridone	98.6		P	40 - 150
Hydrocodone	123		P	40 - 150
Imazapyr	118		P	40 - 150
Imidacloprid	111		P	40 - 160
Linuron	103		P	40 - 150
MCPP	104		P	40 - 150
Primidone	107		P	40 - 150
Pyraclostrobin	105		P	40 - 150
Triclopyr	110		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P345070

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P345071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P345074

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P345075

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345023

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344848

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988777	Chloride	97.3		P	90 - 110
1988856	Chloride	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988943	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344572

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988859	Kjeldahl Nitrogen	95.4	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988792	NO2NO3-N	96.8	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988944	NO2NO3-N	95.6	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988943	Total-P	97.3	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988794	O-Phosphate-P	90.6	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988825	O-Phosphate-P	92.0	94.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P344375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988880	AMPA	29.7	27.5	F/F	40 - 140
1988880	Endothall	104	106	P/P	40 - 140
1988880	Glufosinate	102	102	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P344375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988880	Glyphosate	32.7	35.4	F/F	40 - 140
1988880	Sucralose	91.4	98.3	P/P	40 - 150
1988880	Sucralose	91.4	98.3	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P344412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989090	2,4-D	70.6	70.8	P/P	40 - 150
1989090	Acetaminophen	116	108	P/P	30 - 150
1989090	Bentazon	43.6	42.0	P/P	30 - 150
1989090	Carbamazepine	106	102	P/P	40 - 150
1989090	Diuron	95.0	81.7	P/P	40 - 150
1989090	Fenuron	109	106	P/P	40 - 150
1989090	Fluridone	87.2	85.7	P/P	40 - 150
1989090	Hydrocodone	140	136	P/P	40 - 150
1989090	Imazapyr	130	112	P/P	40 - 150
1989090	Imidacloprid	216	200	F/F	40 - 160
1989090	Linuron	94.2	88.9	P/P	40 - 150
1989090	MCP	71.6	69.1	P/P	40 - 150
1989090	Primidone	119	102	P/P	40 - 150
1989090	Pyraclostrobin	94.4	92.7	P/P	40 - 150
1989090	Triclopyr	80.6	75.9	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P345074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989207	Fluoride	95.8	98.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P345075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1989011	Fluoride	94.5	95.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988467	Organic Carbon	100	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988856	Turbidity	4.15	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344848

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988777	Chloride	0.154	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988777	Sulfate	0.205	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988943	Ammonia-N	0.351	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988859	Kjeldahl Nitrogen	0.286	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988792	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988944	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988943	Total-P	3.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988794	O-Phosphate-P	3.36	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988825	O-Phosphate-P	2.58	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P344375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988880	AMPA	3.64	Spike	P	0 - 30
1988880	Endothall	2.49	Spike	P	0 - 30
1988880	Glufosinate	0.166	Spike	P	0 - 30
1988880	Glyphosate	6.83	Spike	P	0 - 30
1988880	Sucralose	7.21	Spike	P	0 - 30
1988880	Sucralose	7.21	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P344412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989090	2,4-D	0.259	Spike	P	0 - 30
1989090	Acetaminophen	6.90	Spike	P	0 - 30
1989090	Bentazon	3.30	Spike	P	0 - 30
1989090	Carbamazepine	3.47	Spike	P	0 - 30
1989090	Diuron	6.04	Spike	P	0 - 30
1989090	Fenuron	2.24	Spike	P	0 - 30
1989090	Fluridone	1.54	Spike	P	0 - 30
1989090	Hydrocodone	3.08	Spike	P	0 - 30
1989090	Imazapyr	7.57	Spike	P	0 - 30
1989090	Imidacloprid	7.03	Spike	P	0 - 30
1989090	Linuron	5.82	Spike	P	0 - 30
1989090	MCPP	3.58	Spike	P	0 - 30
1989090	Primidone	15.0	Spike	P	0 - 30
1989090	Pyraclostrobin	1.79	Spike	P	0 - 30
1989090	Triclopyr	5.92	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P344397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988941	Color (true)	7.55	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P345070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989207	Total Alkalinity	0.543	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P345071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989011	Total Alkalinity	0.856	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P344883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988403	TDS	5.08	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P344886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988947	TDS	2.23	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P345074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989207	Fluoride	1.49	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P345075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1989011	Fluoride	0.472	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P345023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988467	Organic Carbon	0.499	Spike	P	0 - 20

* 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: 1988982
Field Sample ID: G2SW0051_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	50.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	93.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	97.2	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1988982
Field Sample ID: G2SW0051_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Diuron-d6	77.0	P	30 - 160
EPA 8321B	Endothall-d6	89.9	P	50 - 160
EPA 8321B	Endothall-d6	89.9	P	50 - 160
EPA 8321B	Glyphosate 13C 15N	45.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	45.6	P	40 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	85.3	P	40 - 160
EPA 8321B	Sucralose-d6	85.3	P	40 - 160

Lab Sample ID: 1988983
Field Sample ID: BLANK

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	83.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	97.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	86.2	P	30 - 160
EPA 8321B	Endothall-d6	109	P	50 - 160
EPA 8321B	Glyphosate 13C 15N	97.8	P	40 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	106	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A83575
Included Lab Sample IDs: 1988970, 1988971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83581
Included Lab Sample IDs: 1988970, 1988971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83588
Included Lab Sample IDs: 1988974, 1988975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	97.8	P/P	90 - 110
O-Phosphate-P	99.2	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83601

Included Lab Sample IDs: 1988972, 1988973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.0	95.5	P/P	90 - 110
NO2NO3-N	97.0	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83665

Included Lab Sample IDs: 1988972

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A83668

Included Lab Sample IDs: 1988972, 1988973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83729

Included Lab Sample IDs: 1988973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83732

Included Lab Sample IDs: 1988970, 1988971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	104	P/P	90 - 110
Chloride	104	93.1	P/P	90 - 110
Sulfate	101	104	P/P	90 - 110
Sulfate	104	91.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83734

Included Lab Sample IDs: 1988972, 1988973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.7	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83769

Included Lab Sample IDs: 1988982, 1988983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	106	103	P/P	60 - 150
Carbamazepine	109	139	P/P	60 - 150
Carbamazepine	110	108	P/P	60 - 150
Diuron	113	119	P/P	60 - 150
Fenuron	119	115	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A83769

Included Lab Sample IDs: 1988982, 1988983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluridone	113	116	P/P	60 - 160
Hydrocodone	125	123	P/P	60 - 150
Imazapyr	117	113	P/P	50 - 150
Imidacloprid	111	102	P/P	60 - 150
Linuron	106	109	P/P	60 - 150
Primidone	114	97.1	P/P	60 - 150
Pyraclostrobin	117	116	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A83798

Included Lab Sample IDs: 1988972, 1988973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	99.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83812

Included Lab Sample IDs: 1988970, 1988971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110
Total Alkalinity	99.1	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83812

Included Lab Sample IDs: 1988970, 1988971

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	98.6	P/P	90 - 110
Fluoride	98.6	98.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83883

Included Lab Sample IDs: 1988982, 1988983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	123	110	P/P	50 - 150
Bentazon	124	127	P/P	50 - 150
MCP	125	133	P/P	50 - 150
Triclopyr	121	131	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A83902

Included Lab Sample IDs: 1988982, 1988983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	103	103	P/P	60 - 160
Endothall	104	109	P/P	60 - 160
Glufosinate	102	93.2	P/P	60 - 160
Glyphosate	95.8	94.1	P/P	60 - 160
Sucralose	122	93.8	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83978
Included Lab Sample IDs: 1988982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.5	105	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				4.15	
EPA 300.0 Rev. 2.1	Chloride	101	97.3 96.6		0.154	
	Sulfate	101			0.205	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	101 102			0.351
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	95.4 95.8			0.286
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	96.8 97.8			0.943
	NO2NO3-N	97.0	95.6 95.6			0.0
EPA 365.1 Rev. 2.0	Total-P	102	97.3 101			3.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	90.6 93.7			3.36
	O-Phosphate-P	98.8	92.0 94.4			2.58
EPA 8321B	2,4-D	95.1	70.6 70.8			0.259
	Acetaminophen	106	116 108			6.90
	AMPA	100	29.7 27.5			3.64
	Bentazon	95.6	43.6 42.0			3.30
	Carbamazepine	109	106 102			3.47
	Diuron	97.6	95.0 81.7			6.04
	Endothall	103	104 106			2.49
	Fenuron	127	109 106			2.24
	Fluridone	98.6	87.2 85.7			1.54
	Glufosinate	99.2	102 102			0.166
	Glyphosate	94.7	32.7 35.4			6.83
	Hydrocodone	123	140 136			3.08
	Imazapyr	118	130 112			7.57
	Imidacloprid	111	216 200			7.03
	Linuron	103	94.2 88.9			5.82
	MCPP	104	71.6 69.1			3.58
	Primidone	107	119 102			15.0
	Pyraclostrobin	105	94.4 92.7			1.79
	Sucralose	100	91.4 98.3			7.21
	Sucralose	100	91.4 98.3			7.21
	Triclopyr	110	80.6 75.9			5.92
SM 2120 B	Color (true)				7.55	
SM 2320 B-97	Total Alkalinity	102			0.543	
	Total Alkalinity	105			0.856	
SM 2540 C-97	TDS				5.08	
	TDS				2.23	
SM 4500 F-C-97	Fluoride	95.6	95.8 98.5			1.49
	Fluoride	95.1	94.5 95.0			0.472
SM 5310 B-00	Organic Carbon	98.6	100 100			0.499

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1988970, 1988971
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1988970, 1988971
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1988970, 1988971
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1988972, 1988973
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1988972, 1988973
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1988972, 1988973
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1988972, 1988973
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1988974, 1988975
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1988982, 1988983
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1988982
SM 2120 B / E31780	True Color measured at 450 nm	1988970, 1988971
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1988970, 1988971
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1988970, 1988971
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1988970, 1988971
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1988970, 1988971
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1988972, 1988973

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	05/01/2018			05/01/2018 16:50	William L. Brown IV	1988970, 1988971
EPA 300.0 Rev. 2.1	05/01/2018			05/07/2018 22:25	Lipi Saha	1988970
	05/01/2018			05/07/2018 23:01	Lipi Saha	1988971
EPA 350.1 Rev. 2.0	05/01/2018			05/07/2018 12:07	Ping Hua	1988972
	05/01/2018			05/07/2018 12:16	Ping Hua	1988973
EPA 351.2 Rev. 2.0	05/01/2018	05/03/2018 13:30	Adrian Shelby	05/04/2018 12:07	Joseph Suarez	1988972
	05/01/2018	05/03/2018 13:30	Adrian Shelby	05/04/2018 12:08	Joseph Suarez	1988973
EPA 353.2 Rev. 2.0	05/01/2018			05/02/2018 14:33	Lauren Bottorf	1988972
	05/01/2018			05/02/2018 14:54	Lauren Bottorf	1988973
EPA 365.1 Rev. 2.0	05/01/2018	05/03/2018 13:11	Sima Feizi	05/04/2018 10:34	Beverly Y. Sanders	1988972
	05/01/2018	05/03/2018 13:11	Sima Feizi	05/07/2018 11:31	Beverly Y. Sanders	1988973
EPA 365.1 Rev. 2.0 dissolved	05/01/2018			05/01/2018 16:02	Megan Treadwell	1988975
	05/01/2018			05/01/2018 16:28	Megan Treadwell	1988974
EPA 8321B	05/01/2018	05/03/2018 10:00	Hoor Shaik	05/07/2018 01:52	Juyoung Kim	1988982
	05/01/2018	05/03/2018 10:00	Hoor Shaik	05/07/2018 02:27	Juyoung Kim	1988983
	05/01/2018	05/03/2018 10:00	Hoor Shaik	05/08/2018 12:55	Juyoung Kim	1988982
	05/01/2018	05/03/2018 10:00	Hoor Shaik	05/09/2018 09:14	Juyoung Kim	1988982
	05/01/2018	05/03/2018 10:00	Hoor Shaik	05/09/2018 09:49	Juyoung Kim	1988983
	05/01/2018	05/03/2018 17:00	Hoor Shaik	05/03/2018 23:45	Juyoung Kim	1988982
	05/01/2018	05/03/2018 17:00	Hoor Shaik	05/04/2018 00:03	Juyoung Kim	1988983
	05/01/2018	05/03/2018 17:00	Hoor Shaik	05/16/2018 10:44	Juyoung Kim	1988982
SM 2120 B	05/01/2018			05/01/2018 14:36	Tanya Welborn	1988970
	05/01/2018			05/01/2018 14:37	Tanya Welborn	1988971
SM 2320 B-97	05/01/2018			05/09/2018 22:57	Dale L. Simmons	1988970
	05/01/2018			05/10/2018 00:22	Dale L. Simmons	1988971
SM 2540 C-97	05/01/2018			05/02/2018 15:06	Yijie Li	1988970, 1988971
SM 2540 D-97	05/01/2018			05/02/2018 15:06	Yijie Li	1988970, 1988971
SM 4500 F-C-97	05/01/2018			05/09/2018 22:57	Dale L. Simmons	1988970
	05/01/2018			05/10/2018 00:22	Dale L. Simmons	1988971
SM 5310 B-00	05/01/2018			05/09/2018 20:33	Megan Treadwell	1988972
	05/01/2018			05/09/2018 20:45	Megan Treadwell	1988973