

Chemical Analysis Report

CEN-DIST-2017-04-12-01

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

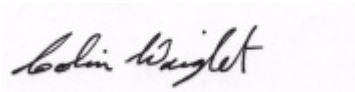
Event Description: **UnBranch 2641/ UnBranch 2642**
Request ID: **RQ-2017-04-10-45**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 04-MAY-2017 09:44



NON-CONFORMANCE REPORT INCLUDED

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: Unnamed Branch @ 60m US of Airport Road Collection Date/Time: 04/11/2017 12:45

Field ID: G5CE0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887847	EPA 180.1 Rev. 2.0	Turbidity	2.4	A	NTU	P323267	
	SM 2320 B-97	Total Alkalinity	105		mg CaCO3/L	P323886	
	SM 2540 D-97	TSS	3	I	mg/L	P323891	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P324305	
1887848	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P323275	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P323373	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P323398	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P323424	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P323369	
1887849	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P323295	

Ref. Method and Comment:

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

Sample Location: Unnamed Branch @ 750m US of confluence w/ Tomoka River Collection Date/Time: 04/11/2017 13:28

Field ID: G5CE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887850	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P323267	
	EPA 300.0 Rev. 2.1	Chloride	1.1E+04		mg Cl/L	P323745	
		Sulfate	1.4E+03		mg SO4/L	P323747	
	SM 2120 B	Color (true)	40		PCU	P323260	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P323543	
	SM 2540 C-97	TDS	1.87E+04		mg/L	P323656	
	SM 2540 D-97	TSS	4	I	mg/L	P323904	
	SM 4500 F-C-97	Fluoride	0.61		mg F/L	P323539	
1887851	EPA 350.1 Rev. 2.0	Ammonia-N	0.051	Y	mg N/L	P323274	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82	Y	mg N/L	P323380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	IY	mg N/L	P323570	
	EPA 365.1 Rev. 2.0	Total-P	0.10	Y	mg P/L	P323427	
	SM 5310 B-00	Organic Carbon	11	Y	mg C/L	P323370	
1887852	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P323300	
1887857	EPA 8321B	Sucralose**	0.25		ug/L	P323139	
	USGS O-2060-01	2,4-D	0.010	I	ug/L	P323221	
		Diuron	0.0040	U	ug/L	P323221	
		Fenuron	0.0080	U	ug/L	P323221	
		Imidacloprid	0.0040	U	ug/L	P323221	
		Bentazon	0.27		ug/L	P323221	
		Linuron	0.0040	U	ug/L	P323221	MS
		Acetaminophen**	0.010	U	ug/L	P323221	
		MCP	0.0040	U	ug/L	P323221	
		Carbamazepine**	4.8E-04	I	ug/L	P323221	
		Triclopyr**	0.055		ug/L	P323221	
		Primidone**	0.0080	U	ug/L	P323221	

Field ID: G5CE0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887857	USGS O-2060-01	Fluridone**	0.0033		ug/L	P323221	RPD

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: NO2NO3-N: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

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

Non-Conformance Report

NCR ID: 6357

Event(s)

CEN-DIST-2017-04-12-01

Job(s)

TLH-2017-04-12-50

Sample(s)

1887851

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample(s) not preserved to pH<2.

Resolution: Sample preserved in lab at 11:43 AM on 4/12/2017.

Authorized by/Date: Ramsey K. White 4/17/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P323267

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P323745

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P323747

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P323274

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: P323275

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323373

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323380

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323398

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323570

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323424

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323427

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323295

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323300

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: P323139

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P323260

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P323543

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

Reference Method: SM 2320 B-97
Batch ID: P323886

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

Reference Method: SM 2540 C-97
Batch ID: P323656

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323891

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323904

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P324305

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P323369

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

Reference Method: SM 5310 B-00
Batch ID: P323370

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

Reference Method: USGS O-2060-01
Batch ID: P323221

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323745

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323747

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323274

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323275

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323373

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323398

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323424

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323427

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: P323295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323300

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P323139

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	104		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
 Batch ID: P323543

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
 Batch ID: P323886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P323539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.0		P	92 - 103

Reference Method: SM 4500 F-C-97
 Batch ID: P324305

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P323369

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	106		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P323370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	107		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P323221

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	97.2		P	40 - 140
Acetaminophen	51.2		P	40 - 140
Bentazon	140		P	40 - 140
Carbamazepine	90.4		P	40 - 140
Diuron	76.0		P	40 - 140
Fenuron	86.8		P	40 - 140
Fluridone	96.0		P	40 - 140
Imidacloprid	76.4		P	40 - 160
Linuron	50.0		P	40 - 140
MCPP	90.0		P	40 - 140
Primidone	96.4		P	40 - 140
Triclopyr	96.8		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887928	Chloride	100		P	90 - 110
1888029	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887928	Sulfate	93.4		P	90 - 110
1888029	Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323274

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887709	Ammonia-N	105	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887691	Ammonia-N	102	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887848	Kjeldahl Nitrogen	98.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887963	Kjeldahl Nitrogen	93.0	93.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323398

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887755	NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887851	NO2NO3-N	97.7	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323424

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887937	Total-P	98.7	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887966	Total-P	93.2	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887692	O-Phosphate-P	95.8	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887852	O-Phosphate-P	96.7	98.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P323139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887573	Sucralose	87.3	98.0	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885557	Fluoride	95.5	94.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P324305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887806	Fluoride	95.8	93.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P323369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887685	Organic Carbon	104	105	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P323370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887173	Organic Carbon	105	105	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P323221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887741	2,4-D	135	127	P/P	40 - 140
1887741	Acetaminophen	70.4	56.8	P/P	40 - 140
1887741	Carbamazepine	66.0	63.6	P/P	40 - 140
1887741	Diuron	63.3	66.5	P/P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P323221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1887741	Fenuron	60.8	52.8	P/P	40 - 140
1887741	Fluridone	59.6	42.8	P/P	40 - 140
1887741	Imidacloprid	112	98.4	P/P	40 - 160
1887741	Linuron	40.0	47.2	F/P	40 - 140
1887741	MCCP	131	116	P/P	40 - 140
1887741	Primidone	50.0	51.2	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887847	Turbidity	9.77	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888029	Chloride	0.0975	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888029	Sulfate	0.113	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887709	Ammonia-N	1.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887691	Ammonia-N	3.02	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887848	Kjeldahl Nitrogen	1.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887963	Kjeldahl Nitrogen	0.564	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323398

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887755	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887851	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887937	Total-P	4.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887966	Total-P	3.32	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887692	O-Phosphate-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887852	O-Phosphate-P	1.04	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P323139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887573	Sucralose	11.5	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P323260

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887927	Color (true)	2.96	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P323543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887138	Total Alkalinity	0.0884	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P323886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887805	Total Alkalinity	1.58	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P323656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1888364	TDS	1.03	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P323539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885557	Fluoride	0.934	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P324305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887806	Fluoride	2.00	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P323369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887685	Organic Carbon	0.381	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P323370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887173	Organic Carbon	0.174	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P323221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887741	2,4-D	5.51	Spike	P	0 - 30
1887741	Acetaminophen	21.4	Spike	P	0 - 30
1887741	Bentazon	8.61	Spike	P	0 - 30
1887741	Carbamazepine	3.70	Spike	P	0 - 30
1887741	Diuron	3.43	Spike	P	0 - 30
1887741	Fenuron	14.1	Spike	P	0 - 30
1887741	Fluridone	30.4	Spike	F	0 - 30
1887741	Imidacloprid	12.6	Spike	P	0 - 30
1887741	Linuron	16.6	Spike	P	0 - 30
1887741	MCP	12.6	Spike	P	0 - 30
1887741	Primidone	2.37	Spike	P	0 - 30
1887741	Triclopyr	0.612	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: 1887857
Field Sample ID: G5CE0017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	86.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	119	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	53.4	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	64.4	P	40 - 160
USGS O-2060-01	Diuron-d6	40.4	P	30 - 150
USGS O-2060-01	Primidone-d5	65.6	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A75747
Included Lab Sample IDs: 1887850

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75748
Included Lab Sample IDs: 1887847, 1887850

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75750

Included Lab Sample IDs: 1887848, 1887851

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 365.1 Rev. 2.0 dissolved

Run ID: A75755

Included Lab Sample IDs: 1887849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	97.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A75756

Included Lab Sample IDs: 1887857

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75757

Included Lab Sample IDs: 1887852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	98.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A75775

Included Lab Sample IDs: 1887848, 1887851

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75786

Included Lab Sample IDs: 1887848

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	92.5	92.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75791

Included Lab Sample IDs: 1887848

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75815

Included Lab Sample IDs: 1887848

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75815

Included Lab Sample IDs: 1887848

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75819

Included Lab Sample IDs: 1887851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.7	91.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75826

Included Lab Sample IDs: 1887851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75833

Included Lab Sample IDs: 1887850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.0	96.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75835

Included Lab Sample IDs: 1887850

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75838

Included Lab Sample IDs: 1887851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.0	95.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75903

Included Lab Sample IDs: 1887850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	99.7	P/P	90 - 110
Sulfate	98.4	93.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75952

Included Lab Sample IDs: 1887847

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

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01
 Run ID: A75985
 Included Lab Sample IDs: 1887857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.6	104	P/P	50 - 150
Bentazon	89.8	88.6	P/P	50 - 150
MCP	107	107	P/P	50 - 150
Tricopyr	118	83.8	P/P	50 - 150

Reference Method: USGS O-2060-01
 Run ID: A76024
 Included Lab Sample IDs: 1887857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	146	143	P/P	60 - 150
Carbamazepine	128	136	P/P	60 - 150
Diuron	114	115	P/P	60 - 150
Fenuron	125	126	P/P	60 - 150
Fluridone	129	132	P/P	60 - 150
Imidacloprid	105	112	P/P	60 - 150
Linuron	76.0	66.0	P/P	60 - 150
Primidone	96.4	95.2	P/P	60 - 150

Reference Method: SM 4500 F-C-97
 Run ID: A76090
 Included Lab Sample IDs: 1887847

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	95.0	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				9.77	
EPA 300.0 Rev. 2.1	Chloride	100	99.5	100	0.0975	
	Sulfate	97.5	97.3	93.4	0.113	
EPA 350.1 Rev. 2.0	Ammonia-N	100	105	103		1.23
	Ammonia-N	101	102	97.9		3.02
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.9	101		1.25
	Kjeldahl Nitrogen	96.8	93.0	93.6		0.564
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	98.0	98.5		0.509
	NO ₂ NO ₃ -N	98.0	97.7	97.7		0.0
EPA 365.1 Rev. 2.0	Total-P	101	98.7	105		4.99
	Total-P	100	93.2	96.3		3.32
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	95.8	97.1		1.08
	O-Phosphate-P	96.8	96.7	98.3		1.04
EPA 8321B	Sucralose	104	87.3	98.0		11.5
SM 2120 B	Color (true)				2.96	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 2320 B-97	Total Alkalinity	104				0.0884	
	Total Alkalinity	104				1.58	
SM 2540 C-97	TDS					1.03	
SM 4500 F-C-97	Fluoride	96.0	95.5	94.3			0.934
	Fluoride	95.9	95.8	93.6			2.00
SM 5310 B-00	Organic Carbon	106	104	105			0.381
	Organic Carbon	107	105	105			0.174
USGS O-2060-01	2,4-D	97.2	135	127			5.51
	Acetaminophen	51.2	70.4	56.8			21.4
	Bentazon	140					8.61
	Carbamazepine	90.4	66.0	63.6			3.70
	Diuron	76.0	63.3	66.5			3.43
	Fenuron	86.8	60.8	52.8			14.1
	Fluridone	96.0	59.6	42.8			30.4
	Imidacloprid	76.4	112	98.4			12.6
	Linuron	50.0	40.0	47.2			16.6
	MCPD	90.0	131	116			12.6
	Primidone	96.4	50.0	51.2			2.37
	Triclopyr	96.8					0.612

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1887847, 1887850
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1887850
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1887850
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1887848, 1887851
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1887848, 1887851
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1887848, 1887851
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1887848, 1887851
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1887849, 1887852
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1887857
SM 2120 B / E31780	True Color measured at 450 nm	1887850
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1887847, 1887850
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1887850
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1887847, 1887850
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1887847, 1887850
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1887848, 1887851
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1887857
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1887857

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	04/12/2017			04/12/2017 15:06	Sima Feizi	1887847, 1887850
EPA 300.0 Rev. 2.1	04/12/2017			04/20/2017	Ping Hua	1887850
EPA 350.1 Rev. 2.0	04/12/2017			04/12/2017	Julie Michelle Frank	1887848, 1887851
EPA 351.2 Rev. 2.0	04/12/2017	04/14/2017	Adrian Shelby	04/14/2017	Joseph Suarez	1887848
	04/12/2017	04/14/2017	Adrian Shelby	04/17/2017	Joseph Suarez	1887851
EPA 353.2 Rev. 2.0	04/12/2017			04/14/2017	Beverly Y. Sanders	1887848
	04/12/2017			04/18/2017	Beverly Y. Sanders	1887851
EPA 365.1 Rev. 2.0	04/12/2017	04/14/2017	Vijayalakshmi Reddy	04/17/2017	Lipi Saha	1887848, 1887851
EPA 365.1 Rev. 2.0 dissolved	04/12/2017			04/12/2017 14:40	Anthony C. Onicha	1887849
	04/12/2017			04/13/2017 10:25	Anthony C. Onicha	1887852
EPA 8321B	04/12/2017	04/12/2017	Mohammad Ghaffari	04/13/2017	Mohammad Ghaffari	1887857
SM 2120 B	04/12/2017			04/12/2017 15:09	Julia Storbeck	1887850
SM 2320 B-97	04/12/2017			04/18/2017	Dale L. Simmons	1887850
	04/12/2017			04/22/2017	Dale L. Simmons	1887847
SM 2540 C-97	04/12/2017			04/14/2017	Yijie Li	1887850
SM 2540 D-97	04/12/2017			04/14/2017	Yijie Li	1887847, 1887850
SM 4500 F-C-97	04/12/2017			04/17/2017	Dale L. Simmons	1887850
	04/12/2017			05/01/2017	Dale L. Simmons	1887847
SM 5310 B-00	04/12/2017			04/13/2017	Julie Michelle Frank	1887848
	04/12/2017			04/14/2017	Julie Michelle Frank	1887851
USGS O-2060-01	04/12/2017	04/16/2017	Fe-Val Siddell	04/22/2017	Juyoung Kim	1887857
	04/12/2017	04/16/2017	Fe-Val Siddell	04/25/2017	Juyoung Kim	1887857