

Chemical Analysis Report

NW-DIST-2017-11-07-01

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

Event Description: **ENR D WBID 548GB 30C 429**

Request ID: **RQ-2017-11-13-23**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
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160 W Government St
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Certified by: Colin Wright, Program Administrator

Date Certified: 04-DEC-2017 12:13

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular background.

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: Blackwater Bay West of Escribano Point

Collection Date/Time: 11/06/2017 11:15

Field ID: G4NW0401

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943495	EPA 8321B	Sucralose**	0.036	I	ug/L	P334664	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P334632	
		Diuron	8.0E-04	U	ug/L	P334632	
		Fenuron	0.0080	U	ug/L	P334632	
		Imidacloprid	0.0017	I	ug/L	P334632	
		Bentazon	8.0E-04	U	ug/L	P334632	
		Linuron	0.0040	U	ug/L	P334632	
		Acetaminophen**	0.0080	U	ug/L	P334632	
		MCP	0.0020	U	ug/L	P334632	
		Carbamazepine**	4.0E-04	U	ug/L	P334632	
		Triclopyr**	0.0040	U	ug/L	P334632	
		Primidone**	0.0040	U	ug/L	P334632	
		Fluridone**	4.0E-04	U	ug/L	P334632	

Sample Location: Blackwater Bay West of Escribano Point

Collection Date/Time: 11/06/2017 11:15

Field ID: G4NW0401

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943488	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P334905	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO ₃ /L	P335164	
	SM 2540 D-97	TSS	2	I	mg/L	P335261	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P335168	
1943489	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P335571	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P335415	
	EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	0.091		mg N/L	P335424	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P335041	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P335302	
1943490	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P334875	

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: Yellow River abv Metts Creek

Collection Date/Time: 11/06/2017 13:30

Field ID: G4NW0370

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943482	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P334905	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P335055	
		Sulfate	1.1		mg SO ₄ /L	P335058	
	SM 2120 B	Color (true)	49	A	PCU	P334890	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO ₃ /L	P335163	
	SM 2540 C-97	TDS	24	I	mg/L	P335253	
	SM 2540 D-97	TSS	6	I	mg/L	P335258	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P335167	
1943484	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P335579	

Field ID: G4NW0370

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943484	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P335322	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P335455	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P334970	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P335302	
1943486	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P334872	

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: Dead River abv Yellow River

Collection Date/Time: 11/06/2017 12:10

Field ID: G4NW0408

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1943483	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P334905	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P335055	
		Sulfate	0.89		mg SO4/L	P335058	
	SM 2120 B	Color (true)	69		PCU	P334890	
	SM 2320 B-97	Total Alkalinity	7.2		mg CaCO3/L	P335164	
	SM 2540 C-97	TDS	35		mg/L	P335253	
	SM 2540 D-97	TSS	3	I	mg/L	P335258	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P335168	
1943485	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P335579	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P335322	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P335455	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P334971	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P335302	
1943487	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P334873	

Ref. Method and Comment:

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: P334905

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335055

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P335058

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335571

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335579

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335322

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335415

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335424

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335455

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334971

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335041

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334873

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334875

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

Reference Method: EPA 8321B
Batch ID: P334664

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P334890

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335163

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

Reference Method: SM 2320 B-97
Batch ID: P335164

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

Reference Method: SM 2540 C-97
Batch ID: P335253

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P335258

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P335261

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P335167

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P335168

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P335302

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

Reference Method: USGS O-2060-01
 Batch ID: P334632

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
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P335055

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P335058

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335579

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335322

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335415

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335424

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334971

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335041

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334875

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

Reference Method: EPA 8321B
Batch ID: P334664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	102		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P335163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	107		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P335164

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

Reference Method: SM 4500 F-C-97
Batch ID: P335167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P335168

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P334632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	52.5		P	40 - 150
Acetaminophen	102		P	30 - 150
Bentazon	48.3		P	30 - 150
Carbamazepine	119		P	40 - 150
Diuron	114		P	40 - 150
Fenuron	114		P	40 - 150
Fluridone	111		P	40 - 150
Imidacloprid	114		P	40 - 160
Linuron	106		P	40 - 150
MCPP	57.5		P	40 - 150
Primidone	115		P	40 - 150
Triclopyr	53.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335055

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943207	Chloride	95.1		P	90 - 110
1943482	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943207	Sulfate	93.0		P	90 - 110
1943482	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1942558	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943484	Ammonia-N	98.0	94.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943485	Kjeldahl Nitrogen	93.2	95.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944057	Kjeldahl Nitrogen	99.4	93.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335424

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943416	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943484	NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943225	Total-P	95.7	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943505	Total-P	96.4	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943489	Total-P	98.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943214	O-Phosphate-P	105	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943217	O-Phosphate-P	103	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943490	O-Phosphate-P	91.3	94.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P334664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1942837	Sucralose	71.7	69.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P335167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1942957	Fluoride	99.0	99.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P335168

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943504	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P335302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943159	Organic Carbon	99.1	98.9	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P334632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1943517	Acetaminophen	128	104	P/P	30 - 150
1943517	Carbamazepine	76.8	73.4	P/P	40 - 150
1943517	Diuron	85.3	74.9	P/P	40 - 150
1943517	Fenuron	91.4	86.3	P/P	40 - 150
1943517	Fluridone	95.4	86.3	P/P	40 - 150
1943517	Imidacloprid	128	123	P/P	40 - 160
1943517	Linuron	95.9	91.9	P/P	40 - 150
1943517	Primidone	98.6	89.2	P/P	40 - 150
1943612	2,4-D	103	98.1	P/P	40 - 150
1943612	Bentazon	54.5	52.5	P/P	30 - 150
1943612	MCP	106	90.8	P/P	40 - 150
1943612	Triclopyr	100	82.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P334905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943397	Turbidity	5.67	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943207	Chloride	5.21	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P335058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943207	Sulfate	5.26	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942558	Ammonia-N	0.0126	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943484	Ammonia-N	3.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943485	Kjeldahl Nitrogen	2.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944057	Kjeldahl Nitrogen	3.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943416	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P335455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943484	NO2NO3-N	0.772	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943225	Total-P	1.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943505	Total-P	1.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P335041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943489	Total-P	3.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943214	O-Phosphate-P	1.97	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943217	O-Phosphate-P	5.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943490	O-Phosphate-P	3.29	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P334664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942837	Sucralose	3.79	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P334890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943482	Color (true)	2.10	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P335163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942957	Total Alkalinity	1.14	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P335164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943504	Total Alkalinity	0.321	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P335253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943171	TDS	2.82	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1942957	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P335168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943504	Fluoride	0.484	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943159	Organic Carbon	0.181	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P334632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943517	Acetaminophen	20.8	Spike	P	0 - 30
1943517	Carbamazepine	4.53	Spike	P	0 - 30
1943517	Diuron	12.7	Spike	P	0 - 30
1943517	Fenuron	5.70	Spike	P	0 - 30
1943517	Fluridone	7.40	Spike	P	0 - 30
1943517	Imidacloprid	3.67	Spike	P	0 - 30
1943517	Linuron	4.24	Spike	P	0 - 30
1943517	Primidone	10.1	Spike	P	0 - 30
1943612	2,4-D	5.01	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P334632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1943612	Bentazon	3.76	Spike	P	0 - 30
1943612	MCP	15.2	Spike	P	0 - 30
1943612	Triclopyr	18.9	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: 1943495
Field Sample ID: G4NW0401

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	55.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	120	P	30 - 160
EPA 8321B	Diuron-d6	102	P	30 - 160
EPA 8321B	Primidone-d5	139	P	30 - 160
EPA 8321B	Sucralose-d6	55.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	89.6	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	55.9	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	120	P	30 - 160
USGS O-2060-01	Diuron-d6	102	P	30 - 160
USGS O-2060-01	Primidone-d5	139	P	30 - 160
USGS O-2060-01	Sucralose-d6	55.7	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80109
Included Lab Sample IDs: 1943486, 1943487, 1943490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	102	99.5	P/P	90 - 110
O-Phosphate-P	99.5	102	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A80114
Included Lab Sample IDs: 1943482, 1943483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	103	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80117
Included Lab Sample IDs: 1943482, 1943483, 1943488

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80134

Included Lab Sample IDs: 1943482, 1943483

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80199

Included Lab Sample IDs: 1943484, 1943485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A80224

Included Lab Sample IDs: 1943482, 1943483, 1943488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A80224

Included Lab Sample IDs: 1943482, 1943483, 1943488

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

Reference Method: USGS O-2060-01

Run ID: A80228

Included Lab Sample IDs: 1943495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	112	102	P/P	50 - 150
Bentazon	91.7	92.0	P/P	50 - 150
MCP	119	117	P/P	50 - 150
Triclopyr	101	107	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80248

Included Lab Sample IDs: 1943489

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

Reference Method: SM 5310 B-00

Run ID: A80269

Included Lab Sample IDs: 1943484, 1943485, 1943489

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A80274

Included Lab Sample IDs: 1943495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	121	123	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80277

Included Lab Sample IDs: 1943484, 1943485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A80279

Included Lab Sample IDs: 1943495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	124	121	P/P	60 - 150
Carbamazepine	116	118	P/P	60 - 150
Diuron	129	128	P/P	60 - 150
Fenuron	111	111	P/P	60 - 150
Fluridone	110	113	P/P	60 - 160
Imidacloprid	104	110	P/P	60 - 150
Linuron	118	117	P/P	60 - 150
Primidone	112	103	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80312

Included Lab Sample IDs: 1943489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80328

Included Lab Sample IDs: 1943489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.1	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80368

Included Lab Sample IDs: 1943489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80369

Included Lab Sample IDs: 1943484, 1943485

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A80377
Included Lab Sample IDs: 1943484, 1943485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.6	92.6	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				5.67	
EPA 300.0 Rev. 2.1	Chloride	102	95.1 102		5.21	
	Sulfate	102	93.0 101		5.26	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	105 105			0.0126
	Ammonia-N	110	98.0 94.5			3.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	93.2 95.9			2.25
	Kjeldahl Nitrogen	97.9	99.4 93.4			3.43
EPA 353.2 Rev. 2.0	NO2NO3-N	105	104 104			0.0
	NO2NO3-N	104	103 104			0.772
EPA 365.1 Rev. 2.0	Total-P	99.2	95.7 97.6			1.54
	Total-P	96.8	96.4 97.8			1.27
	Total-P	102	98.6 102			3.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	105 108			1.97
	O-Phosphate-P	108	103 96.2			5.16
	O-Phosphate-P	103	91.3 94.6			3.29
EPA 8321B	Sucralose	102	71.7 69.0			3.79
SM 2120 B	Color (true)				2.10	
SM 2320 B-97	Total Alkalinity	107			1.14	
	Total Alkalinity	104			0.321	
SM 2540 C-97	TDS				2.82	
SM 4500 F-C-97	Fluoride	99.2	99.0 99.0			0.0
	Fluoride	99.2	101 100			0.484
SM 5310 B-00	Organic Carbon	99.6	99.1 98.9			0.181
USGS O-2060-01	2,4-D	52.5	98.1 103			5.01
	Acetaminophen	102	128 104			20.8
	Bentazon	48.3	52.5 54.5			3.76
	Carbamazepine	119	76.8 73.4			4.53
	Diuron	114	85.3 74.9			12.7
	Fenuron	114	91.4 86.3			5.70
	Fluridone	111	95.4 86.3			7.40
	Imidacloprid	114	128 123			3.67
	Linuron	106	95.9 91.9			4.24
	MCPP	57.5	90.8 106			15.2
	Primidone	115	98.6 89.2			10.1
	Triclopyr	53.3	82.9 100			18.9

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1943482, 1943483, 1943488
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1943482, 1943483
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1943482, 1943483
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1943484, 1943485, 1943489
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1943484, 1943485, 1943489
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1943484, 1943485, 1943489
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1943484, 1943485, 1943489
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1943486, 1943487, 1943490
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1943495
SM 2120 B / E31780	True Color measured at 450 nm	1943482, 1943483
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1943482, 1943483, 1943488
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1943482, 1943483
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1943482, 1943483, 1943488
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1943482, 1943483, 1943488
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1943484, 1943485, 1943489
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1943495
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1943495

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	11/07/2017			11/07/2017 17:16	DeAsia Armster	1943482, 1943483, 1943488
EPA 300.0 Rev. 2.1	11/07/2017			11/08/2017	Julia Storbeck	1943482
	11/07/2017			11/09/2017	Julia Storbeck	1943483
EPA 350.1 Rev. 2.0	11/07/2017			11/17/2017	Sofia Elnemr	1943484, 1943485, 1943489
EPA 351.2 Rev. 2.0	11/07/2017	11/15/2017	Adrian Shelby	11/17/2017	Virginia P. Brown	1943484, 1943485
	11/07/2017	11/16/2017	Adrian Shelby	11/16/2017	Joseph Suarez	1943489
EPA 353.2 Rev. 2.0	11/07/2017			11/15/2017	Beverly Y. Sanders	1943484, 1943485
	11/07/2017			11/16/2017	Beverly Y. Sanders	1943489
EPA 365.1 Rev. 2.0	11/07/2017	11/08/2017	Sima Feizi	11/13/2017	Lipi Saha	1943484, 1943485
	11/07/2017	11/09/2017	Sima Feizi	11/14/2017	Lipi Saha	1943489
EPA 365.1 Rev. 2.0 dissolved	11/07/2017			11/07/2017 14:43	Megan Treadwell	1943490
	11/07/2017			11/07/2017 15:20	Megan Treadwell	1943486, 1943487
EPA 8321B	11/07/2017	11/13/2017	Juyoung Kim	11/14/2017	Juyoung Kim	1943495
SM 2120 B	11/07/2017			11/07/2017 16:09	Tanya Welborn	1943482
	11/07/2017			11/07/2017 16:10	Tanya Welborn	1943483
SM 2320 B-97	11/07/2017			11/10/2017	Dale L. Simmons	1943482, 1943483, 1943488
SM 2540 C-97	11/07/2017			11/08/2017	Yijie Li	1943482, 1943483
SM 2540 D-97	11/07/2017			11/08/2017	Yijie Li	1943482, 1943483, 1943488
SM 4500 F-C-97	11/07/2017			11/10/2017	Dale L. Simmons	1943482, 1943483, 1943488
SM 5310 B-00	11/07/2017			11/14/2017	Ping Hua	1943484, 1943485, 1943489
USGS O-2060-01	11/07/2017	11/09/2017	Hoor Shaik	11/11/2017	Julie Michelle Frank	1943495
	11/07/2017	11/09/2017	Hoor Shaik	11/14/2017	Julie Michelle Frank	1943495