

Chemical Analysis Report

NW-DIST-2017-09-07-01

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

Event Description: **PENS/CANT Run WBID 542 586 676 444 639 489**

Request ID: **RQ-2017-09-04-46**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 02-OCT-2017 15:48



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: Carpenters Creek abv 9th Ave.

Collection Date/Time: 09/06/2017 11:20

Field ID: G4NW0415

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928515	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P331440	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P331761	
		Sulfate	4.7		mg SO4/L	P331758	
	SM 2120 B	Color (true)	23	A	PCU	P331428	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P331733	
	SM 2540 C-97	TDS	51	Q	mg/L	P331975	
	SM 2540 D-97	TSS	2	UAQ	mg/L	P331714	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P331737	
1928518	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P331595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P331785	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.97		mg N/L	P331618	
	EPA 365.1 Rev. 2.0	Total-P	0.006	J	mg P/L	P331627	MS
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P331895	
1928521	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P331436	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.

Sample Location: Carpenters Creek abv 9th Ave.

Collection Date/Time: 09/06/2017 11:20

Field ID: G4NW0415

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928536	EPA 8321B	Sucralose**	0.25		ug/L	P331348	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P331347	
		Diuron	9.3E-04	I	ug/L	P331347	
		Fenuron	0.0080	U	ug/L	P331347	
		Imidacloprid	0.055		ug/L	P331347	MS
		Bentazon	8.0E-04	U	ug/L	P331347	
		Linuron	0.0040	U	ug/L	P331347	
		Acetaminophen**	0.0080	U	ug/L	P331347	
		MCP	0.0020	U	ug/L	P331347	
		Carbamazepine**	0.0021	J	ug/L	P331347	SUR
		Triclopyr**	0.0040	U	ug/L	P331347	
		Primidone**	0.0040	U	ug/L	P331347	
		Fluridone**	4.0E-04	U	ug/L	P331347	

Ref. Method and Comment:

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes. Carbamazepine-d10 surrogate spike recovery exceeding the control limits. Results confirmed.

Sample Location: Rest Area Run below Beaver Pond Creek

Collection Date/Time: 09/06/2017 12:15

Field ID: G5NW0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928537	EPA 8321B	Sucralose**	0.40		ug/L	P331348	

Field ID: G5NW0068

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928537	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P331347	
		Diuron	8.0E-04	U	ug/L	P331347	
		Fenuron	0.0080	U	ug/L	P331347	
		Imidacloprid	0.024		ug/L	P331347	MS
		Bentazon	8.0E-04	U	ug/L	P331347	
		Linuron	0.0040	U	ug/L	P331347	
		Acetaminophen**	0.0080	U	ug/L	P331347	
		MCP	0.0020	U	ug/L	P331347	
		Carbamazepine**	0.0057	J	ug/L	P331347	SUR
		Triclopyr**	0.0040	U	ug/L	P331347	
		Primidone**	0.0040	UJ	ug/L	P331347	SUR
		Fluridone**	4.0E-04	U	ug/L	P331347	

Ref. Method and Comment:

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes. Carbamazepine-d10 and primidone-d5 surrogate spike recovery exceeding the control limits. Results confirmed.

Sample Location: Elevenmile Creek abv Hwy 90

Collection Date/Time: 09/06/2017 13:30

Field ID: G5NW0126

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928538	EPA 8321B	Sucralose**	0.13		ug/L	P331348	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P331347	
		Diuron	8.1E-04	I	ug/L	P331347	
		Fenuron	0.0080	U	ug/L	P331347	
		Imidacloprid	0.037		ug/L	P331347	MS
		Bentazon	8.0E-04	I	ug/L	P331347	
		Linuron	0.0040	U	ug/L	P331347	
		Acetaminophen**	0.0080	U	ug/L	P331347	
		MCP	0.0020	U	ug/L	P331347	
		Carbamazepine**	0.0011	I	ug/L	P331347	
		Triclopyr**	0.0040	U	ug/L	P331347	
		Primidone**	0.0040	U	ug/L	P331347	
		Fluridone**	4.0E-04	U	ug/L	P331347	

Sample Location: Spencer Field Drain, Dridglers Creek abv Parkview Street

Collection Date/Time: 09/06/2017 15:10

Field ID: G4NW0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928516	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P331440	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P331761	
		Sulfate	2.6		mg SO4/L	P331758	
	SM 2120 B	Color (true)	140		PCU	P331429	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P331733	
	SM 2540 C-97	TDS	42	Q	mg/L	P331976	
	SM 2540 D-97	TSS	2	U	mg/L	P331715	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P331737	

Field ID: G4NW0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928519	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P331595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P331785	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P331618	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P331627	MS
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P331895	
1928522	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331437	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

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

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

**Sample Location: Spencer Field Drain, Dridglers Creek abv
Parkview St.**

Collection Date/Time: 09/06/2017 15:15

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928517	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P331440	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P331761	
		Sulfate	0.20	U	mg SO4/L	P331758	
	SM 2120 B	Color (true)	2.5	U	PCU	P331429	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P331733	
	SM 2540 C-97	TDS	15	UQ	mg/L	P331976	
	SM 2540 D-97	TSS	2	U	mg/L	P331715	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P331737	
1928520	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P331595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P332034	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331618	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P331627	MS
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P332046	
1928523	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P331437	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

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

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P331440

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P331758

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331761

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331595

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331785

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332034

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331618

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331627

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331436

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

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

Reference Method: EPA 8321B
Batch ID: P331348

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P331428

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P331429

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P331733

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P331975

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P331976

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P331714

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P331715

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P331737

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P331895

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P332046

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

Reference Method: USGS O-2060-01
Batch ID: P331347

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331758

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331761

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331595

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331785

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.3		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331436

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

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

Reference Method: EPA 8321B
Batch ID: P331348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	44.1		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P331733

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P331737

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

Reference Method: SM 5310 B-00
Batch ID: P331895

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

Reference Method: SM 5310 B-00
Batch ID: P332046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P331347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	89.6		P	40 - 150
Acetaminophen	130		P	30 - 150
Bentazon	105		P	40 - 150
Carbamazepine	109		P	40 - 150
Diuron	113		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	122		P	40 - 150
Imidacloprid	97.0		P	40 - 160
Linuron	101		P	40 - 150
MCPP	78.3		P	40 - 150
Primidone	105		P	40 - 150
Triclopyr	92.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P331758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928350	Sulfate	97.9		P	90 - 110
1928389	Sulfate	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P331761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928350	Chloride	96.7		P	90 - 110
1928389	Chloride	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P331595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928518	Ammonia-N	96.5	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P331785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928558	Kjeldahl Nitrogen	102	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P332034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929285	Kjeldahl Nitrogen	91.7	94.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P331627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928518	Total-P	90.8	88.6	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P331436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928472	O-Phosphate-P	96.7	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P331437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928522	O-Phosphate-P	99.9	99.9	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P331348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927987	Sucralose	62.4	55.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P331737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928462	Fluoride	97.1	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P331895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928500	Organic Carbon	93.5	95.6	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P332046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928836	Organic Carbon	94.3	94.5	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P331347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927989	2,4-D	123	122	P/P	40 - 150
1927989	Acetaminophen	134	132	P/P	30 - 150
1927989	Bentazon	59.3	43.3	P/P	40 - 150
1927989	Carbamazepine	106	102	P/P	40 - 150
1927989	Diuron	81.6	76.0	P/P	40 - 150
1927989	Fenuron	75.2	72.7	P/P	40 - 150
1927989	Fluridone	79.3	81.3	P/P	40 - 150
1927989	Imidacloprid	222	215	F/F	40 - 160
1927989	Linuron	83.4	91.3	P/P	40 - 150
1927989	MCPP	117	118	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P331347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927989	Primidone	99.3	97.6	P/P	40 - 150
1927989	Triclopyr	108	101	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928447	Turbidity	1.07	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928350	Sulfate	3.94	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928350	Chloride	3.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928518	Ammonia-N	1.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928558	Kjeldahl Nitrogen	2.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929285	Kjeldahl Nitrogen	2.86	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928519	NO2NO3-N	0.336	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928518	Total-P	2.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928472	O-Phosphate-P	1.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928522	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P331348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927987	Sucralose	7.37	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P331428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928515	Color (true)	5.04	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928553	Color (true)	0.101	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P331733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928462	Total Alkalinity	0.205	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P331975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928498	TDS	1.36	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P331976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928551	TDS	1.89	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P331737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928462	Fluoride	1.04	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P331895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928500	Organic Carbon	1.81	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P332046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928836	Organic Carbon	0.201	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P331347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927989	2,4-D	0.208	Spike	P	0 - 30
1927989	Acetaminophen	1.19	Spike	P	0 - 30
1927989	Bentazon	9.60	Spike	P	0 - 30
1927989	Carbamazepine	3.80	Spike	P	0 - 30
1927989	Diuron	7.21	Spike	P	0 - 30
1927989	Fenuron	3.49	Spike	P	0 - 30
1927989	Fluridone	2.52	Spike	P	0 - 30
1927989	Imidacloprid	3.26	Spike	P	0 - 30
1927989	Linuron	9.09	Spike	P	0 - 30
1927989	MCCP	0.649	Spike	P	0 - 30
1927989	Primidone	1.81	Spike	P	0 - 30
1927989	Triclopyr	7.05	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: 1928536

Field Sample ID: G4NW0415

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	44.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	182	F	30 - 160
EPA 8321B	Diuron-d6	138	P	30 - 160
EPA 8321B	Primidone-d5	150	P	30 - 160
EPA 8321B	Sucralose-d6	148	P	40 - 160
USGS O-2060-01	2,4-D-d3	83.6	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	44.7	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	182	F	30 - 160
USGS O-2060-01	Diuron-d6	138	P	30 - 160
USGS O-2060-01	Primidone-d5	150	P	30 - 160
USGS O-2060-01	Sucralose-d6	148	P	40 - 160

Lab Sample ID: 1928537

Field Sample ID: G5NW0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	126	P	30 - 160
EPA 8321B	Carbamazepine-d10	163	F	30 - 160
EPA 8321B	Diuron-d6	134	P	30 - 160
EPA 8321B	Primidone-d5	177	F	30 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160
USGS O-2060-01	2,4-D-d3	106	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	126	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	163	F	30 - 160
USGS O-2060-01	Diuron-d6	134	P	30 - 160
USGS O-2060-01	Primidone-d5	177	F	30 - 160
USGS O-2060-01	Sucralose-d6	114	P	40 - 160

Lab Sample ID: 1928538

Field Sample ID: G5NW0126

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	118	P	30 - 160
EPA 8321B	Carbamazepine-d10	155	P	30 - 160
EPA 8321B	Diuron-d6	124	P	30 - 160
EPA 8321B	Primidone-d5	151	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	40 - 160
USGS O-2060-01	2,4-D-d3	81.5	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	118	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	155	P	30 - 160
USGS O-2060-01	Diuron-d6	124	P	30 - 160
USGS O-2060-01	Primidone-d5	151	P	30 - 160
USGS O-2060-01	Sucralose-d6	113	P	40 - 160

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A78847

Included Lab Sample IDs: 1928515, 1928516, 1928517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	99.4	P/P	85 - 115
Color (true)	99.4	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A78851

Included Lab Sample IDs: 1928521, 1928522, 1928523

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	98.7	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A78853

Included Lab Sample IDs: 1928515, 1928516, 1928517

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78895

Included Lab Sample IDs: 1928518, 1928519, 1928520

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78906

Included Lab Sample IDs: 1928518, 1928519, 1928520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	105	P/P	90 - 110
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A78926

Included Lab Sample IDs: 1928536, 1928537, 1928538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	144	146	P/P	60 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A78940

Included Lab Sample IDs: 1928515, 1928516, 1928517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	99.6	P/P	90 - 110
Chloride	99.6	98.9	P/P	90 - 110
Sulfate	100	99.0	P/P	90 - 110
Sulfate	99.0	97.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A78958

Included Lab Sample IDs: 1928515, 1928516, 1928517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78958

Included Lab Sample IDs: 1928515, 1928516, 1928517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78979

Included Lab Sample IDs: 1928518, 1928519, 1928520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110
Total-P	99.8	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A79031

Included Lab Sample IDs: 1928518, 1928519

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	96.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79050

Included Lab Sample IDs: 1928518, 1928519

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	102	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A79060

Included Lab Sample IDs: 1928536, 1928537, 1928538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.2	97.7	P/P	50 - 150
2,4-D	97.7	98.1	P/P	50 - 150
Acetaminophen	103	104	P/P	60 - 150
Acetaminophen	104	102	P/P	60 - 150
Bentazon	94.5	97.4	P/P	50 - 150
Bentazon	97.4	102	P/P	50 - 150
Carbamazepine	119	122	P/P	60 - 150
Carbamazepine	121	119	P/P	60 - 150
Diuron	102	97.9	P/P	60 - 150
Diuron	97.9	102	P/P	60 - 150
Fenuron	100	102	P/P	60 - 150
Fenuron	102	102	P/P	60 - 150
Fluridone	103	104	P/P	60 - 160
Fluridone	104	106	P/P	60 - 160
Imidacloprid	91.8	99.1	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79060

Included Lab Sample IDs: 1928536, 1928537, 1928538

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	99.3	91.8	P/P	60 - 150
Linuron	97.4	100	P/P	60 - 150
Linuron	97.4	97.4	P/P	60 - 150
MCPP	95.0	98.5	P/P	50 - 150
MCPP	98.5	96.9	P/P	50 - 150
Primidone	93.7	94.9	P/P	60 - 150
Primidone	94.9	98.6	P/P	60 - 150
Triclopyr	105	105	P/P	50 - 150
Triclopyr	105	100	P/P	50 - 150

Reference Method: SM 5310 B-00

Run ID: A79077

Included Lab Sample IDs: 1928520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.6	93.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79123

Included Lab Sample IDs: 1928520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.7	95.5	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				1.07	
EPA 300.0 Rev. 2.1	Chloride	101	96.7 98.5		3.14	
	Sulfate	102	97.9 99.6		3.94	
EPA 350.1 Rev. 2.0	Ammonia-N	106	96.5 98.0			1.16
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102 106			2.25
	Kjeldahl Nitrogen	98.3	91.7 94.6			2.86
EPA 353.2 Rev. 2.0	NO2NO3-N	108				0.336
EPA 365.1 Rev. 2.0	Total-P	94.9	90.8 88.6			2.50
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	96.7 99.1			1.86
	O-Phosphate-P	104	99.9 99.9			0.0
EPA 8321B	Sucralose	44.1	62.4 55.8			7.37
SM 2120 B	Color (true)				5.04	
	Color (true)				0.101	
SM 2320 B-97	Total Alkalinity	102			0.205	
SM 2540 C-97	TDS				1.36	
	TDS				1.89	
SM 4500 F-C-97	Fluoride	95.9	97.1 98.4			1.04

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
SM 5310 B-00	Organic Carbon	96.0	93.5	95.6			1.81
	Organic Carbon	94.8	94.3	94.5			0.201
USGS O-2060-01	2,4-D	89.6	123	122			0.208
	Acetaminophen	130	134	132			1.19
	Bentazon	105	59.3	43.3			9.60
	Carbamazepine	109	106	102			3.80
	Diuron	113	81.6	76.0			7.21
	Fenuron	111	75.2	72.7			3.49
	Fluridone	122	79.3	81.3			2.52
	Imidacloprid	97.0	222	215			3.26
	Linuron	101	83.4	91.3			9.09
	MCP	78.3	117	118			0.649
	Primidone	105	99.3	97.6			1.81
	Triclopyr	92.1	108	101			7.05

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1928515, 1928516, 1928517
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1928515, 1928516, 1928517
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1928515, 1928516, 1928517
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1928518, 1928519, 1928520
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1928518, 1928519, 1928520
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1928518, 1928519, 1928520
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1928518, 1928519, 1928520
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1928521, 1928522, 1928523
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1928536, 1928537, 1928538
SM 2120 B / E31780	True Color measured at 450 nm	1928515, 1928516, 1928517
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1928515, 1928516, 1928517
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1928515, 1928516, 1928517
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1928515, 1928516, 1928517
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1928515, 1928516, 1928517
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1928518, 1928519, 1928520
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1928536, 1928537, 1928538
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1928536, 1928537, 1928538

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	09/07/2017			09/07/2017 14:19	DeAsia Armster	1928515, 1928516, 1928517
EPA 300.0 Rev. 2.1	09/07/2017			09/16/2017	Julia Storbeck	1928515, 1928516, 1928517
EPA 350.1 Rev. 2.0	09/07/2017			09/13/2017	Sofia Elnemr	1928518, 1928519, 1928520
EPA 351.2 Rev. 2.0	09/07/2017	09/18/2017	Adrian Shelby	09/20/2017	Tanya Welborn	1928518, 1928519
	09/07/2017	09/22/2017	Adrian Shelby	09/25/2017	Joseph Suarez	1928520
EPA 353.2 Rev. 2.0	09/07/2017			09/14/2017	Beverly Y. Sanders	1928518, 1928519, 1928520
EPA 365.1 Rev. 2.0	09/07/2017	09/14/2017	Sima Feizi	09/18/2017	Lipi Saha	1928518, 1928519, 1928520
EPA 365.1 Rev. 2.0 dissolved	09/07/2017			09/07/2017 12:59	Megan Treadwell	1928522
	09/07/2017			09/07/2017 13:07	Megan Treadwell	1928523
	09/07/2017			09/07/2017 13:20	Megan Treadwell	1928521
EPA 8321B	09/07/2017	09/07/2017	Hoor Shaik	09/14/2017	Juyoung Kim	1928536, 1928537, 1928538
SM 2120 B	09/07/2017			09/07/2017 13:15	Tanya Welborn	1928515
	09/07/2017			09/07/2017 13:18	Tanya Welborn	1928516
	09/07/2017			09/07/2017 13:19	Tanya Welborn	1928517
SM 2320 B-97	09/07/2017			09/15/2017	Dale L. Simmons	1928515, 1928516, 1928517
SM 2540 C-97	09/07/2017			09/13/2017	DeAsia Armster	1928515, 1928516, 1928517
SM 2540 D-97	09/07/2017			09/13/2017	DeAsia Armster	1928515, 1928516, 1928517
SM 4500 F-C-97	09/07/2017			09/15/2017	Dale L. Simmons	1928515, 1928516, 1928517
SM 5310 B-00	09/07/2017			09/20/2017	Ping Hua	1928518, 1928519, 1928520
USGS O-2060-01	09/07/2017	09/07/2017	Hoor Shaik	09/20/2017	Julie Michelle Frank	1928536, 1928537, 1928538