

Chemical Analysis Report

NE-DIST-2017-08-23-01

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

Event Description: **LSJR SW**
Request ID: **RQ-2017-08-07-11**
Customer: **NE-DIST**
Project ID: **SMP**

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8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 15-SEP-2017 13:08



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: Little Black Creek @ SR 220

Collection Date/Time: 08/22/2017 08:45

Field ID: G2NE0626 08092017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923577	EPA 180.1 Rev. 2.0	Turbidity	19	A	NTU	P330726	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P330749	
		Sulfate	3.1		mg SO4/L	P330752	
	SM 2120 B	Color (true)	280		PCU	P330743	
	SM 2320 B-97	Total Alkalinity	58		mg CaCO3/L	P330857	
	SM 2540 C-97	TDS	141		mg/L	P331044	
	SM 2540 D-97	TSS	12		mg/L	P331177	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P330960	
1923579	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P331010	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P330951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P330851	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P330876	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P330971	
1923581	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P330729	

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: Little Black Creek @ SR 220

Collection Date/Time: 08/22/2017 08:45

Field ID: G2NE0626 08092017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923593	EPA 8321B	Sucralose**	0.81		ug/L	P330689	
	USGS O-2060-01	2,4-D	0.0091		ug/L	P330679	
		Diuron	0.0033		ug/L	P330679	
		Fenuron	0.0080	U	ug/L	P330679	
		Imidacloprid	0.036		ug/L	P330679	MS
		Bentazon	0.0052		ug/L	P330679	
		Linuron	0.0040	U	ug/L	P330679	
		Acetaminophen**	0.0080	U	ug/L	P330679	
		MCPD	0.0020	U	ug/L	P330679	
		Carbamazepine**	0.0017		ug/L	P330679	MS
		Triclopyr**	0.0040	U	ug/L	P330679	
		Primidone**	0.0086	I	ug/L	P330679	
		Fluridone**	4.0E-04	U	ug/L	P330679	

Sample Location: Peters Creek @ SR 16

Collection Date/Time: 08/22/2017 09:50

Field ID: G2NE0719 08092017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923596	EPA 8321B	Sucralose**	0.020	U	ug/L	P330689	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P330679	
		Diuron	8.0E-04	U	ug/L	P330679	
		Fenuron	0.0080	U	ug/L	P330679	
		Imidacloprid	8.0E-04	U	ug/L	P330679	MS

Field ID: G2NE0719 08092017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923596	USGS O-2060-01	Bentazon	8.0E-04	U	ug/L	P330679	
		Linuron	0.0040	U	ug/L	P330679	
		Acetaminophen**	0.0080	U	ug/L	P330679	
		MCPD	0.0020	U	ug/L	P330679	
		Carbamazepine**	4.0E-04	U	ug/L	P330679	MS
		Triclopyr**	0.0040	U	ug/L	P330679	
		Primidone**	0.0040	U	ug/L	P330679	
		Fluridone**	4.0E-04	U	ug/L	P330679	

Ref. Method and Comment:
EPA 8321B: MDL elevated due to matrix interference.

Sample Location: Grog Branch @ SR 220

Collection Date/Time: 08/22/2017 09:10

Field ID: G2NE0674 08092017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923578	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P330726	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P330749	
		Sulfate	3.0		mg SO4/L	P330752	
	SM 2120 B	Color (true)	300		PCU	P330742	
	SM 2320 B-97	Total Alkalinity	29	A	mg CaCO3/L	P330857	
	SM 2540 C-97	TDS	104	A	mg/L	P331044	
	SM 2540 D-97	TSS	3	IA	mg/L	P331177	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P330960	
1923580	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P331010	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P330867	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P330851	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P330876	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P330971	
1923582	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P330729	

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: Grog Branch @ SR 220

Collection Date/Time: 08/22/2017 09:10

Field ID: G2NE0674 08092017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923595	EPA 8321B	Sucralose**	0.049	I	ug/L	P330689	
	USGS O-2060-01	2,4-D	0.0021	I	ug/L	P330679	
		Diuron	8.0E-04	U	ug/L	P330679	
		Fenuron	0.0080	U	ug/L	P330679	
		Imidacloprid	0.0029	I	ug/L	P330679	MS
		Bentazon	0.0010	I	ug/L	P330679	
		Linuron	0.0040	U	ug/L	P330679	
		Acetaminophen**	0.0080	U	ug/L	P330679	
		MCPD	0.0020	U	ug/L	P330679	
		Carbamazepine**	4.0E-04	U	ug/L	P330679	MS

Field ID: G2NE0674 08092017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923595	USGS O-2060-01	Triclopyr**	0.0040	U	ug/L	P330679	
		Primidone**	0.0040	U	ug/L	P330679	
		Fluridone**	4.0E-04	U	ug/L	P330679	

Ref. Method and Comment:
 EPA 8321B: MDL elevated due to matrix interference.

Sample Location: Pareners Branch @ 1491

Collection Date/Time: 08/22/2017 11:45

Field ID: G1NE0600

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1923594	EPA 8321B	Sucralose**	0.020	U	ug/L	P330689	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P330679	
		Diuron	0.0083		ug/L	P330679	
		Fenuron	0.0093	I	ug/L	P330679	
		Imidacloprid	0.0033		ug/L	P330679	MS
		Bentazon	8.0E-04	U	ug/L	P330679	
		Linuron	0.0040	U	ug/L	P330679	
		Acetaminophen**	0.0080	U	ug/L	P330679	
		MCP	0.0020	U	ug/L	P330679	
		Carbamazepine**	4.0E-04	U	ug/L	P330679	MS
		Triclopyr**	0.0040	U	ug/L	P330679	
		Primidone**	0.0040	U	ug/L	P330679	
		Fluridone**	4.0E-04	U	ug/L	P330679	

Ref. Method and Comment:
 EPA 8321B: MDL elevated due to matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P330726

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P330749

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P330752

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P331010

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331010

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330867

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330951

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330851

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: P330876

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330729

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

Reference Method: EPA 8321B
Batch ID: P330689

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P330742

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P330743

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P330857

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

Reference Method: SM 2540 C-97
 Batch ID: P331044

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P331177

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P330960

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P330971

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

Reference Method: USGS O-2060-01
 Batch ID: P330679

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: P330749

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330752

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331010

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330867

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330951

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330851

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330876

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330729

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

Reference Method: EPA 8321B
Batch ID: P330689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	93.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P330857

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P330960

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330971

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

Reference Method: USGS O-2060-01
Batch ID: P330679

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	134		P	40 - 150
Acetaminophen	117		P	30 - 150
Bentazon	87.2		P	40 - 150
Carbamazepine	128		P	40 - 150
Diuron	141		P	40 - 150
Fenuron	144		P	40 - 150
Fluridone	126		P	40 - 150
Imidacloprid	137		P	40 - 160
Linuron	119		P	40 - 150
MCPP	103		P	40 - 150
Primidone	133		P	40 - 150
Triclopyr	85.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923333	Chloride	96.5		P	90 - 110
1923478	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923333	Sulfate	98.2		P	90 - 110
1923478	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923579	Ammonia-N	101	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923776	Kjeldahl Nitrogen	98.9	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1924585	Kjeldahl Nitrogen	97.5	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923579	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923776	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923485	O-Phosphate-P	96.9	97.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P330689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923138	Sucralose	111	106	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P330960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923361	Fluoride	100	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P330971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923536	Organic Carbon	99.2	98.2	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P330679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923137	2,4-D	138	130	P/P	40 - 150
1923137	Acetaminophen	109	112	P/P	30 - 150
1923137	Bentazon	51.6	52.6	P/P	40 - 150
1923137	Carbamazepine	155	153	F/F	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P330679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1923137	Diuron	113	122	P/P	40 - 150
1923137	Fenuron	113	128	P/P	40 - 150
1923137	Fluridone	94.5	110	P/P	40 - 150
1923137	Imidacloprid	220	235	F/F	40 - 160
1923137	Linuron	110	126	P/P	40 - 150
1923137	MCP	99.5	111	P/P	40 - 150
1923137	Primidone	129	145	P/P	40 - 150
1923137	Triclopyr	101	106	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923577	Turbidity	2.14	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923333	Chloride	3.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923333	Sulfate	2.52	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923579	Ammonia-N	0.547	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923776	Kjeldahl Nitrogen	2.38	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1924585	Kjeldahl Nitrogen	0.427	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923579	NO2NO3-N	0.428	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923776	Total-P	0.841	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923485	O-Phosphate-P	0.309	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P330689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923138	Sucralose	4.46	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P330742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923769	Color (true)	5.28	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P330743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923361	Color (true)	1.76	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923578	Total Alkalinity	0.718	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P331044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923578	TDS	2.87	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P330960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923361	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P330971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923536	Organic Carbon	0.481	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P330679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1923137	2,4-D	5.84	Spike	P	0 - 30
1923137	Acetaminophen	2.40	Spike	P	0 - 30
1923137	Bentazon	1.88	Spike	P	0 - 30
1923137	Carbamazepine	1.77	Spike	P	0 - 30
1923137	Diuron	7.51	Spike	P	0 - 30
1923137	Fenuron	12.6	Spike	P	0 - 30
1923137	Fluridone	14.7	Spike	P	0 - 30
1923137	Imidacloprid	6.75	Spike	P	0 - 30
1923137	Linuron	13.3	Spike	P	0 - 30
1923137	MCP	11.0	Spike	P	0 - 30
1923137	Primidone	11.3	Spike	P	0 - 30
1923137	Triclopyr	4.49	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: 1923593
 Field Sample ID: G2NE0626 08092017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	105	P	30 - 160
EPA 8321B	Carbamazepine-d10	88.8	P	30 - 160
EPA 8321B	Diuron-d6	65.4	P	30 - 160
EPA 8321B	Primidone-d5	110	P	30 - 160
EPA 8321B	Sucralose-d6	65.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	156	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1923593
Field Sample ID: G2NE0626 08092017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Acetaminophen-d4	105	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	88.8	P	30 - 160
USGS O-2060-01	Diuron-d6	65.4	P	30 - 160
USGS O-2060-01	Primidone-d5	110	P	30 - 160
USGS O-2060-01	Sucralose-d6	65.0	P	40 - 160

Lab Sample ID: 1923594
Field Sample ID: G1NE0600

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	81.7	P	30 - 160
EPA 8321B	Diuron-d6	65.1	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	56.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	131	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	107	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	81.7	P	30 - 160
USGS O-2060-01	Diuron-d6	65.1	P	30 - 160
USGS O-2060-01	Primidone-d5	102	P	30 - 160
USGS O-2060-01	Sucralose-d6	56.5	P	40 - 160

Lab Sample ID: 1923595
Field Sample ID: G2NE0674 08092017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	87.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	75.2	P	30 - 160
EPA 8321B	Diuron-d6	64.4	P	30 - 160
EPA 8321B	Primidone-d5	96.7	P	30 - 160
EPA 8321B	Sucralose-d6	61.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	138	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	87.8	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	75.2	P	30 - 160
USGS O-2060-01	Diuron-d6	64.4	P	30 - 160
USGS O-2060-01	Primidone-d5	96.7	P	30 - 160
USGS O-2060-01	Sucralose-d6	61.5	P	40 - 160

Lab Sample ID: 1923596
Field Sample ID: G2NE0719 08092017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	133	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.3	P	30 - 160
EPA 8321B	Diuron-d6	63.8	P	30 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	71.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	144	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	133	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	86.3	P	30 - 160
USGS O-2060-01	Diuron-d6	63.8	P	30 - 160
USGS O-2060-01	Primidone-d5	106	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1923596
Field Sample ID: G2NE0719 08092017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Sucralose-d6	71.8	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78584
Included Lab Sample IDs: 1923577, 1923578

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.1	101	P/P	90 - 110
Sulfate	97.8	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78588
Included Lab Sample IDs: 1923577, 1923578

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78589
Included Lab Sample IDs: 1923581, 1923582

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

Reference Method: SM 2120 B
Run ID: A78592
Included Lab Sample IDs: 1923577, 1923578

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115
Color (true)	102	104	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78616
Included Lab Sample IDs: 1923579, 1923580

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

Reference Method: SM 2320 B-97
Run ID: A78617
Included Lab Sample IDs: 1923577, 1923578

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78654

Included Lab Sample IDs: 1923580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78657

Included Lab Sample IDs: 1923579

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78663

Included Lab Sample IDs: 1923580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78669

Included Lab Sample IDs: 1923577, 1923578

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

Reference Method: SM 5310 B-00

Run ID: A78672

Included Lab Sample IDs: 1923579, 1923580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78685

Included Lab Sample IDs: 1923579, 1923580

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 351.2 Rev. 2.0

Run ID: A78717

Included Lab Sample IDs: 1923579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	98.7	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A78770

Included Lab Sample IDs: 1923593, 1923594, 1923595, 1923596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	118	121	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A78770

Included Lab Sample IDs: 1923593, 1923594, 1923595, 1923596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	133	118	P/P	50 - 150
Acetaminophen	75.0	91.0	P/P	60 - 150
Acetaminophen	80.9	75.0	P/P	60 - 150
Bentazon	104	106	P/P	50 - 150
Bentazon	91.3	104	P/P	50 - 150
Carbamazepine	102	133	P/P	60 - 150
Carbamazepine	115	102	P/P	60 - 150
Diuron	111	114	P/P	60 - 150
Diuron	114	140	P/P	60 - 150
Fenuron	124	142	P/P	60 - 150
Fenuron	126	124	P/P	60 - 150
Fluridone	79.2	82.7	P/P	60 - 160
Fluridone	82.7	112	P/P	60 - 160
Imidacloprid	115	116	P/P	60 - 150
Imidacloprid	116	144	P/P	60 - 150
Linuron	117	99.5	P/P	60 - 150
Linuron	99.5	136	P/P	60 - 150
MCPP	103	117	P/P	50 - 150
MCPP	109	103	P/P	50 - 150
Primidone	125	127	P/P	60 - 150
Primidone	127	142	P/P	60 - 150
Triclopyr	110	114	P/P	50 - 160
Triclopyr	86.2	110	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A78802

Included Lab Sample IDs: 1923593, 1923594, 1923595, 1923596

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	143	146	P/P	60 - 150

* 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				2.14	
EPA 300.0 Rev. 2.1	Chloride	100	96.5	100	3.90	
	Sulfate	101	98.2	101	2.52	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	101		0.547
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	98.9	102		2.38
	Kjeldahl Nitrogen	104	97.5	98.0		0.427
EPA 353.2 Rev. 2.0	NO2NO3-N	106	103	103		0.428
EPA 365.1 Rev. 2.0	Total-P	101	100	101		0.841
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	96.9	97.2		0.309
EPA 8321B	Sucralose	93.5	111	106		4.46

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 2120 B	Color (true)					5.28	
	Color (true)					1.76	
SM 2320 B-97	Total Alkalinity	108				0.718	
SM 2540 C-97	TDS					2.87	
SM 4500 F-C-97	Fluoride	101	100	100			0.0
SM 5310 B-00	Organic Carbon	100	99.2	98.2			0.481
USGS O-2060-01	2,4-D	134	138	130			5.84
	Acetaminophen	117	109	112			2.40
	Bentazon	87.2	51.6	52.6			1.88
	Carbamazepine	128	155	153			1.77
	Diuron	141	113	122			7.51
	Fenuron	144	113	128			12.6
	Fluridone	126	94.5	110			14.7
	Imidacloprid	137	220	235			6.75
	Linuron	119	110	126			13.3
	MCP	103	99.5	111			11.0
	Primidone	133	129	145			11.3
	Triclopyr	85.6	101	106			4.49

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1923577, 1923578
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1923577, 1923578
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1923577, 1923578
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1923579, 1923580
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1923579, 1923580
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1923579, 1923580
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1923579, 1923580
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1923581, 1923582
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1923593, 1923594, 1923595, 1923596
SM 2120 B / E31780	True Color measured at 450 nm	1923577, 1923578
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1923577, 1923578
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1923577, 1923578
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1923577, 1923578
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1923577, 1923578
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1923579, 1923580
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1923593, 1923594, 1923595, 1923596
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1923593, 1923594, 1923595, 1923596

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	08/23/2017			08/23/2017 15:45	DeAsia Armster	1923577, 1923578
EPA 300.0 Rev. 2.1	08/23/2017			08/24/2017	Julia Storbeck	1923577, 1923578
EPA 350.1 Rev. 2.0	08/23/2017			08/28/2017	Sofia Elnemr	1923579, 1923580
EPA 351.2 Rev. 2.0	08/23/2017	08/25/2017	Adrian Shelby	08/28/2017	Joseph Suarez	1923580
	08/23/2017	08/29/2017	Adrian Shelby	08/30/2017	Joseph Suarez	1923579
EPA 353.2 Rev. 2.0	08/23/2017			08/25/2017	Beverly Y. Sanders	1923579, 1923580
EPA 365.1 Rev. 2.0	08/23/2017	08/25/2017	Sima Feizi	08/28/2017	Lipi Saha	1923579, 1923580
EPA 365.1 Rev. 2.0 dissolved	08/23/2017			08/23/2017 15:06	Megan Treadwell	1923581, 1923582
EPA 8321B	08/23/2017	08/28/2017	Julie Michelle Frank	09/05/2017	Julie Michelle Frank	1923593, 1923594, 1923595, 1923596
SM 2120 B	08/23/2017			08/23/2017 17:27	Tanya Welborn	1923578
	08/23/2017			08/23/2017 17:36	Tanya Welborn	1923577
SM 2320 B-97	08/23/2017			08/25/2017	Dale L. Simmons	1923577, 1923578
SM 2540 C-97	08/23/2017			08/25/2017	Yijie Li	1923577, 1923578
SM 2540 D-97	08/23/2017			08/25/2017	Yijie Li	1923577, 1923578
SM 4500 F-C-97	08/23/2017			08/29/2017	Dale L. Simmons	1923577, 1923578
SM 5310 B-00	08/23/2017			08/28/2017	Ping Hua	1923579, 1923580
USGS O-2060-01	08/23/2017	08/24/2017	Hoor Shaik	08/26/2017	Juyoung Kim	1923593, 1923594, 1923595, 1923596