

Chemical Analysis Report

NE-DIST-2017-11-29-02

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

Event Description: **LSJR South 2**
Request ID: **RQ-2017-11-27-19**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

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

Certified by: Colin Wright, Program Administrator

Date Certified: 18-DEC-2017 11:22

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: Metals, 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: Mill Branch @ McCormick Rd

Collection Date/Time: 11/28/2017 12:50

Field ID: G2NE0688 11282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949212	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P336080	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P336266	
		Sulfate	9.2		mg SO4/L	P336270	
	SM 2120 B	Color (true)	670		PCU	P336074	
	SM 2320 B-97	Total Alkalinity	2.8		mg CaCO3/L	P336465	
	SM 2540 C-97	TDS	188		mg/L	P336393	
	SM 2540 D-97	TSS	4	I	mg/L	P336367	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P336469	
1949213	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P336541	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P336642	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.043		mg N/L	P336319	
	EPA 365.1 Rev. 2.0	Total-P	0.091		mg P/L	P336373	
	SM 5310 B-00	Organic Carbon	46		mg C/L	P336334	
1949214	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P336057	
1949240	EPA 200.7 Rev. 4.4	Calcium	10.5		mg/L	P336084	
		Iron	1.66E+03		ug/L	P336084	
		Magnesium	3.02		mg/L	P336084	
		Potassium	0.95	I	mg/L	P336084	
		Sodium	12.4		mg/L	P336084	
		Zinc	9.4	I	ug/L	P336084	
	EPA 200.8 Rev. 5.4	Arsenic	0.59		ug/L	P336084	
		Cadmium	0.043	I	ug/L	P336084	
		Chromium	1.6	I	ug/L	P336084	
		Copper	1.74		ug/L	P336084	
		Lead	0.88		ug/L	P336084	
		Nickel	1.03		ug/L	P336084	
		Silver	0.010	U	ug/L	P336084	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mill Branch @ McCormick Rd

Collection Date/Time: 11/28/2017 12:50

Field ID: G2NE0688 11282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949234	EPA 8321B	Sucralose**	0.010	U	ug/L	P335952	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P336034	
		Diuron	8.0E-04	U	ug/L	P336034	
		Fenuron	0.0080	U	ug/L	P336034	
		Imidacloprid	0.0038		ug/L	P336034	MS
		Bentazon	8.0E-04	U	ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.014	I	ug/L	P336034	
		MCP	0.0020	U	ug/L	P336034	

Field ID: G2NE0688 11282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949234	USGS O-2060-01	Carbamazepine**	4.0E-04	U	ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.0040	U	ug/L	P336034	
		Fluridone**	4.0E-04	U	ug/L	P336034	

Sample Location: West Run Interceptor D @ Cracker Swamp

Collection Date/Time: 11/28/2017 13:35

Field ID: G2NE0992 11282017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1949235	EPA 8321B	Sucralose**	0.010	U	ug/L	P335952	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P336034	
		Diuron	8.0E-04	U	ug/L	P336034	
		Fenuron	0.0080	U	ug/L	P336034	
		Imidacloprid	8.0E-04	U	ug/L	P336034	MS
		Bentazon	8.0E-04	U	ug/L	P336034	
		Linuron	0.0040	U	ug/L	P336034	
		Acetaminophen**	0.0080	U	ug/L	P336034	
		MCP	0.0020	U	ug/L	P336034	
		Carbamazepine**	4.0E-04	U	ug/L	P336034	
		Triclopyr**	0.0040	U	ug/L	P336034	
		Primidone**	0.0040	U	ug/L	P336034	
		Fluridone**	4.0E-04	U	ug/L	P336034	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P336080

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P336084

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P336084

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336084

Component	Result	Code	Units
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336541

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336642

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336319

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336373

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336057

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

Reference Method: EPA 8321B
Batch ID: P335952

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P336074

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P336465

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

Reference Method: SM 2540 C-97
Batch ID: P336393

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P336367

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P336469

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P336334

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

Reference Method: USGS O-2060-01
Batch ID: P336034

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 200.7 Rev. 4.4

Batch ID: P336084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	106		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	101		P	85 - 115
Sodium	105		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P336084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	99.0		P	85 - 115
Chromium	98.3		P	85 - 115
Copper	97.8		P	85 - 115
Lead	99.2		P	85 - 115
Nickel	101		P	85 - 115
Silver	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P336266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P336270

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P336541

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: P336642

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P336319

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P336373

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P336057

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

Reference Method: EPA 8321B

Batch ID: P335952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	80.4		P	40 - 150

Reference Method: SM 2320 B-97

Batch ID: P336465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97

Batch ID: P336469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	92 - 103

Reference Method: SM 5310 B-00

Batch ID: P336334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: USGS O-2060-01

Batch ID: P336034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	97.6		P	40 - 150
Acetaminophen	115		P	30 - 150
Bentazon	75.8		P	30 - 150
Carbamazepine	109		P	40 - 150
Diuron	106		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	105		P	40 - 150
Imidacloprid	98.3		P	40 - 160
Linuron	100		P	40 - 150
MCP	92.1		P	40 - 150
Primidone	93.9		P	40 - 150
Triclopyr	89.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948995	Calcium	103		P	80 - 120
1948995	Iron	106		P	80 - 120
1948995	Magnesium	103		P	80 - 120
1948995	Potassium	101		P	80 - 120
1948995	Sodium	104		P	80 - 120
1948995	Zinc	99.3		P	80 - 120
1949018	Calcium	102		P	80 - 120
1949018	Iron	110	110	P/P	80 - 120
1949018	Magnesium	108	107	P/P	80 - 120
1949018	Potassium	102	101	P/P	80 - 120
1949018	Sodium	105	105	P/P	80 - 120
1949018	Zinc	98.5	96.5	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948995	Arsenic	101		P	80 - 120
1948995	Cadmium	103		P	80 - 120
1948995	Chromium	97.5		P	80 - 120
1948995	Copper	94.4		P	80 - 120
1948995	Lead	98.3		P	80 - 120
1948995	Nickel	97.4		P	80 - 120
1948995	Silver	102		P	80 - 120
1949018	Arsenic	103	103	P/P	80 - 120
1949018	Cadmium	104	105	P/P	80 - 120
1949018	Chromium	98.7	101	P/P	80 - 120
1949018	Copper	94.9	95.8	P/P	80 - 120
1949018	Lead	99.5	101	P/P	80 - 120
1949018	Nickel	99.0	99.5	P/P	80 - 120
1949018	Silver	103	104	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949216	Chloride	95.0		P	90 - 110
1949218	Chloride	95.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949216	Sulfate	96.2		P	90 - 110
1949218	Sulfate	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336541

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949102	Ammonia-N	101	98.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P336319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949213	NO2NO3-N	92.1	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P336373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949221	Total-P	98.2	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P336057

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949049	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P335952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948654	Sucralose	89.0	97.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P336469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949217	Fluoride	96.3	96.3	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P336334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1949161	Organic Carbon	94.8	95.2	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P336034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1948788	2,4-D	70.0	71.5	P/P	40 - 150
1948788	Acetaminophen	122	125	P/P	30 - 150
1948788	Bentazon	45.1	44.6	P/P	30 - 150
1948788	Carbamazepine	90.4	93.1	P/P	40 - 150
1948788	Diuron	85.6	88.0	P/P	40 - 150
1948788	Fenuron	66.5	74.1	P/P	40 - 150
1948788	Fluridone	89.7	94.3	P/P	40 - 150
1948788	Imidacloprid	164	174	F/F	40 - 160
1948788	Linuron	99.0	99.5	P/P	40 - 150
1948788	MCP	59.4	58.1	P/P	40 - 150
1948788	Primidone	82.9	82.9	P/P	40 - 150
1948788	Triclopyr	61.3	57.4	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P336080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949059	Turbidity	7.18	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P336084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949018	Calcium	0.813	Spike	P	0 - 20
1949018	Iron	0.107	Spike	P	0 - 20
1949018	Magnesium	0.730	Spike	P	0 - 20
1949018	Potassium	0.537	Spike	P	0 - 20
1949018	Sodium	0.00201	Spike	P	0 - 20
1949018	Zinc	1.12	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P336084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949018	Arsenic	0.662	Spike	P	0 - 20
1949018	Cadmium	0.641	Spike	P	0 - 20
1949018	Chromium	1.84	Spike	P	0 - 20
1949018	Copper	0.698	Spike	P	0 - 20
1949018	Lead	1.64	Spike	P	0 - 20
1949018	Nickel	0.566	Spike	P	0 - 20
1949018	Silver	1.17	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949216	Chloride	0.664	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P336270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949216	Sulfate	0.750	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P336541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949102	Ammonia-N	1.96	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P336642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949963	Kjeldahl Nitrogen	1.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P336319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949213	NO2NO3-N	0.439	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P336373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949221	Total-P	4.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P336057

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949049	O-Phosphate-P	0.189	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P335952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948654	Sucralose	8.15	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P336074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949215	Color (true)	1.45	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P336465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949217	Total Alkalinity	1.90	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P336393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949217	TDS	4.90	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
 Batch ID: P336469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949217	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P336334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1949161	Organic Carbon	0.268	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P336034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1948788	2,4-D	2.26	Spike	P	0 - 30
1948788	Acetaminophen	2.70	Spike	P	0 - 30
1948788	Bentazon	1.00	Spike	P	0 - 30
1948788	Carbamazepine	2.94	Spike	P	0 - 30
1948788	Diuron	2.72	Spike	P	0 - 30
1948788	Fenuron	8.74	Spike	P	0 - 30
1948788	Fluridone	5.01	Spike	P	0 - 30
1948788	Imidacloprid	5.83	Spike	P	0 - 30
1948788	Linuron	0.427	Spike	P	0 - 30
1948788	MCP	2.11	Spike	P	0 - 30
1948788	Primidone	0.0415	Spike	P	0 - 30
1948788	Triclopyr	6.48	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: 1949234
 Field Sample ID: G2NE0688 11282017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	131	P	30 - 160
EPA 8321B	Carbamazepine-d10	72.8	P	30 - 160
EPA 8321B	Diuron-d6	71.8	P	30 - 160
EPA 8321B	Primidone-d5	53.5	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	40 - 160
USGS O-2060-01	2,4-D-d3	76.1	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	131	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	72.8	P	30 - 160
USGS O-2060-01	Diuron-d6	71.8	P	30 - 160
USGS O-2060-01	Primidone-d5	53.5	P	30 - 160
USGS O-2060-01	Sucralose-d6	101	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1949235
Field Sample ID: G2NE0992 11282017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	159	P	30 - 160
EPA 8321B	Carbamazepine-d10	90.1	P	30 - 160
EPA 8321B	Diuron-d6	79.1	P	30 - 160
EPA 8321B	Primidone-d5	66.9	P	30 - 160
EPA 8321B	Sucralose-d6	70.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	79.3	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	159	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	90.1	P	30 - 160
USGS O-2060-01	Diuron-d6	79.1	P	30 - 160
USGS O-2060-01	Primidone-d5	66.9	P	30 - 160
USGS O-2060-01	Sucralose-d6	70.4	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A80568
Included Lab Sample IDs: 1949234, 1949235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	85.2	74.5	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A80577
Included Lab Sample IDs: 1949214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A80591
Included Lab Sample IDs: 1949212

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A80593
Included Lab Sample IDs: 1949212

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A80619
Included Lab Sample IDs: 1949240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.6	100	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A80619

Included Lab Sample IDs: 1949240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	97.5	99.0	P/P	90 - 110
Sodium	98.4	98.7	P/P	90 - 110
Zinc	102	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80632

Included Lab Sample IDs: 1949212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	99.6	P/P	90 - 110
Sulfate	99.9	99.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A80648

Included Lab Sample IDs: 1949240

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	101	P/P	90 - 110
Cadmium	99.7	99.8	P/P	90 - 110
Chromium	98.1	97.0	P/P	90 - 110
Copper	99.4	99.8	P/P	90 - 110
Lead	98.4	99.2	P/P	90 - 110
Nickel	99.9	101	P/P	90 - 110
Silver	99.5	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80683

Included Lab Sample IDs: 1949213

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

Reference Method: SM 5310 B-00

Run ID: A80692

Included Lab Sample IDs: 1949213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.6	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A80693

Included Lab Sample IDs: 1949234, 1949235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.9	98.5	P/P	50 - 150
Acetaminophen	117	115	P/P	60 - 150
Bentazon	99.4	100	P/P	50 - 150
Carbamazepine	115	113	P/P	60 - 150
Diuron	111	104	P/P	60 - 150
Fenuron	114	112	P/P	60 - 150
Fluridone	117	116	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A80693

Included Lab Sample IDs: 1949234, 1949235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	108	103	P/P	60 - 150
Linuron	110	115	P/P	60 - 150
MCP	94.3	98.8	P/P	50 - 150
Primidone	119	114	P/P	60 - 150
Triclopyr	87.7	90.6	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80725

Included Lab Sample IDs: 1949213

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

Reference Method: SM 2320 B-97

Run ID: A80732

Included Lab Sample IDs: 1949212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A80732

Included Lab Sample IDs: 1949212

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80749

Included Lab Sample IDs: 1949213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80815

Included Lab Sample IDs: 1949213

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	107	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	Precision SMP	MS
				LCS	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						7.18	
EPA 200.7 Rev. 4.4	Calcium	103	103	102				0.813
	Iron	106	106	110	110			0.107
	Magnesium	109	103	108	107			0.730
	Potassium	101	101	102	101			0.537
	Sodium	105	104	105	105			0.0020
	Zinc	101	99.3	98.5	96.5			1.12
EPA 200.8 Rev. 5.4	Arsenic	102	101	103	103			0.662
	Cadmium	99.0	103	104	105			0.641
	Chromium	98.3	97.5	98.7	101			1.84
	Copper	97.8	94.4	94.9	95.8			0.698
	Lead	99.2	98.3	99.5	101			1.64
	Nickel	101	97.4	99.0	99.5			0.566
	Silver	102	102	103	104			1.17
EPA 300.0 Rev. 2.1	Chloride	94.2	95.0	95.3			0.664	
	Sulfate	94.5	96.2	95.4			0.750	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	98.9				1.96
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106						1.46
EPA 353.2 Rev. 2.0	NO2NO3-N	104	92.1	92.6				0.439
EPA 365.1 Rev. 2.0	Total-P	99.0	98.2	103				4.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	100	100				0.189
EPA 8321B	Sucralose	80.4	89.0	97.8				8.15
SM 2120 B	Color (true)						1.45	
SM 2320 B-97	Total Alkalinity	103					1.90	
SM 2540 C-97	TDS						4.90	
SM 4500 F-C-97	Fluoride	96.8	96.3	96.3				0.0
SM 5310 B-00	Organic Carbon	97.0	94.8	95.2				0.268
USGS O-2060-01	2,4-D	97.6	70.0	71.5				2.26
	Acetaminophen	115	125	122				2.70
	Bentazon	75.8	45.1	44.6				1.00
	Carbamazepine	109	93.1	90.4				2.94
	Diuron	106	88.0	85.6				2.72
	Fenuron	109	74.1	66.5				8.74
	Fluridone	105	94.3	89.7				5.01
	Imidacloprid	98.3	174	164				5.83
	Linuron	100	99.5	99.0				0.427
	MCP	92.1	59.4	58.1				2.11
	Primidone	93.9	82.9	82.9				0.0415
	Triclopyr	89.1	61.3	57.4				6.48

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1949212
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1949240
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1949240
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1949212
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1949212

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1949213
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1949213
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1949213
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1949213
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1949214
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1949234, 1949235
SM 2120 B / E31780	True Color measured at 450 nm	1949212
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1949212
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1949212
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1949212
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1949212
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1949213
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1949234, 1949235
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1949234, 1949235

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	11/29/2017			11/29/2017 16:26	DeAsia Armster	1949212
EPA 200.7 Rev. 4.4	11/29/2017	11/29/2017	Elliott D. Healy	11/30/2017	Betina Topolski	1949240
EPA 200.8 Rev. 5.4	11/29/2017	11/29/2017	Elliott D. Healy	12/01/2017	Nadine Brooks	1949240
EPA 300.0 Rev. 2.1	11/29/2017			12/02/2017	Julia Storbeck	1949212
EPA 350.1 Rev. 2.0	11/29/2017			12/06/2017	Sofia Elnemr	1949213
EPA 351.2 Rev. 2.0	11/29/2017	12/08/2017	Adrian Shelby	12/11/2017	Joseph Suarez	1949213
EPA 353.2 Rev. 2.0	11/29/2017			12/04/2017	Lauren Bottorf	1949213
EPA 365.1 Rev. 2.0	11/29/2017	12/05/2017	Sima Feizi	12/06/2017	Beverly Y. Sanders	1949213
EPA 365.1 Rev. 2.0 dissolved	11/29/2017			11/29/2017 12:39	Megan Treadwell	1949214
EPA 8321B	11/29/2017	11/29/2017	Juyoung Kim	11/30/2017	Juyoung Kim	1949234, 1949235
SM 2120 B	11/29/2017			11/29/2017 15:11	Tanya Welborn	1949212
SM 2320 B-97	11/29/2017			12/06/2017	Dale L. Simmons	1949212
SM 2540 C-97	11/29/2017			12/01/2017	Yijie Li	1949212
SM 2540 D-97	11/29/2017			12/01/2017	Yijie Li	1949212
SM 4500 F-C-97	11/29/2017			12/06/2017	Dale L. Simmons	1949212
SM 5310 B-00	11/29/2017			12/04/2017	Ping Hua	1949213
USGS O-2060-01	11/29/2017	12/04/2017	Hoor Shaik	12/05/2017	Julie Michelle Frank	1949234, 1949235
	11/29/2017	12/04/2017	Hoor Shaik	12/06/2017	Julie Michelle Frank	1949234, 1949235