

Chemical Analysis Report

CEN-DIST-2017-06-16-03

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

Event Description: **Rose / Strickland / UnBranch 2642**

Request ID: **RQ-2017-06-05-38**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

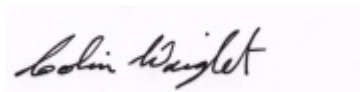
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

For additional information please contact

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Certified by: Colin Wright, Program Administrator

Date Certified: 14-JUL-2017 14:10

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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: STRICKLAND BAY @ 100M SW OF US1 BRIDGE

Collection Date/Time: 06/15/2017 12:43

Field ID: G5CE0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907073	EPA 180.1 Rev. 2.0	Turbidity	8.6	A	NTU	P327043	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	18		mg/L	P327531	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P327379	
1907074	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P327185	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P327205	
	EPA 365.1 Rev. 2.0	Total-P	0.083		mg P/L	P327212	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P327585	
1907075	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.029		mg P/L	P327004	
1907083	EPA 200.7 Rev. 4.4	Iron	560		ug/L	P327143	
	EPA 200.8 Rev. 5.4	Arsenic	2.3	I	ug/L	P327143	
		Cadmium	0.20	U	ug/L	P327143	
		Chromium	1.2	U	ug/L	P327143	
		Copper	2.0	U	ug/L	P327143	
		Lead	0.80	U	ug/L	P327143	
		Nickel	1.0	U	ug/L	P327143	
		Silver	0.10	U	ug/L	P327143	
		Zinc	20	U	ug/L	P327143	

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: STRICKLAND BAY @ 100M SW OF US1 BRIDGE

Collection Date/Time: 06/15/2017 12:43

Field ID: G5CE0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907081	EPA 8321B	Sucralose**	0.45		ug/L	P327044	
	USGS O-2060-01	2,4-D	0.018		ug/L	P326835	
		Diuron	0.0045		ug/L	P326835	
		Fenuron	0.0080	U	ug/L	P326835	
		Imidacloprid	0.0043		ug/L	P326835	MS
		Bentazon	0.016		ug/L	P326835	MS
		Linuron	0.0040	U	ug/L	P326835	
		Acetaminophen**	0.0080	U	ug/L	P326835	
		MCP	0.0020	U	ug/L	P326835	
		Carbamazepine**	0.0026		ug/L	P326835	
		Triclopyr**	0.0040	U	ug/L	P326835	
		Primidone**	0.0040	I	ug/L	P326835	
		Fluridone**	0.0055		ug/L	P326835	

Sample Location: STRICKLAND BAY @ 100M SW OF US1 BRIDGE-dup

Collection Date/Time: 06/15/2017 12:45

Field ID: G5CE0090 DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907082	EPA 8321B	Sucralose**	0.49		ug/L	P327044	
	USGS O-2060-01	2,4-D	0.019		ug/L	P326835	
		Diuron	0.0044		ug/L	P326835	
		Fenuron	0.0080	U	ug/L	P326835	
		Imidacloprid	0.0043		ug/L	P326835	MS
		Bentazon	0.016		ug/L	P326835	MS
		Linuron	0.0040	U	ug/L	P326835	
		Acetaminophen**	0.0080	U	ug/L	P326835	
		MCP	0.0020	U	ug/L	P326835	
		Carbamazepine**	0.0026		ug/L	P326835	
		Triclopyr**	0.0040	U	ug/L	P326835	
		Primidone**	0.0046	I	ug/L	P326835	
		Fluridone**	0.0059		ug/L	P326835	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327043

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327143

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327143

Component	Result	Code	Units
Arsenic	0.25	U	ug/L
Cadmium	0.050	U	ug/L
Chromium	0.30	U	ug/L
Copper	0.50	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.25	U	ug/L
Silver	0.025	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327205

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: P327212

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327004

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

Reference Method: EPA 8321B
Batch ID: P327044

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P327372

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

Reference Method: SM 2540 D-97
Batch ID: P327531

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327585

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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P326835

Component	Result	Code	Units
2,4-D	8.0E-04	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
MCPD	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: P327143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P327143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	95.0		P	85 - 115
Cadmium	99.0		P	85 - 115
Chromium	98.6		P	85 - 115
Copper	97.9		P	85 - 115
Lead	99.0		P	85 - 115
Nickel	99.5		P	85 - 115
Silver	97.8		P	85 - 115
Zinc	94.4		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326990

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P327185

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327205

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327205

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327212

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327004

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

Reference Method: EPA 8321B
Batch ID: P327044

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	89.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P327372

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

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327585

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P326835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	70.8		P	40 - 150
Acetaminophen	30.4		P	30 - 150
Bentazon	62.4		P	40 - 150
Carbamazepine	115		P	40 - 150
Diuron	112		P	40 - 150
Fenuron	116		P	40 - 150
Fluridone	101		P	40 - 150
Imidacloprid	100		P	40 - 160
Linuron	107		P	40 - 150
MCPP	84.2		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
 Batch ID: P326835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Primidone	115		P	40 - 150
Triclopyr	87.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P327143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906988	Iron	101	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P327143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906988	Arsenic	91.1	95.0	P/P	70 - 130
1906988	Cadmium	85.4	89.3	P/P	70 - 130
1906988	Chromium	94.5	98.5	P/P	70 - 130
1906988	Copper	91.3	92.1	P/P	70 - 130
1906988	Lead	102	102	P/P	70 - 130
1906988	Nickel	89.5	91.6	P/P	70 - 130
1906988	Silver	83.3	86.9	P/P	70 - 130
1906988	Zinc	80.6	83.8	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P326990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906547	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P327185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907024	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327205

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907074	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P327212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907022	Total-P	100	97.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P327004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907027	O-Phosphate-P	91.6	93.3	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P327044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906947	Sucralose	111	93.6	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P327379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907018	Fluoride	96.7	99.8	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P327585

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906931	Organic Carbon	95.6	94.6	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P326835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906079	2,4-D	73.2	72.2	P/P	40 - 150
1906079	Acetaminophen	119	115	P/P	40 - 150
1906079	Bentazon	30.0	31.2	F/F	40 - 150
1906079	Carbamazepine	92.0	96.8	P/P	40 - 150
1906079	Diuron	75.2	80.2	P/P	40 - 150
1906079	Fenuron	76.4	82.2	P/P	40 - 150
1906079	Fluridone	58.0	59.6	P/P	40 - 150
1906079	Imidacloprid	157	161	P/F	40 - 160
1906079	Linuron	110	101	P/P	40 - 150
1906079	MCP	59.6	61.4	P/P	40 - 150
1906079	Primidone	88.8	88.0	P/P	40 - 150
1906079	Triclopyr	69.4	64.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P327043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907073	Turbidity	9.14	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906988	Iron	0.925	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906988	Arsenic	3.99	Spike	P	0 - 20
1906988	Cadmium	4.48	Spike	P	0 - 20
1906988	Chromium	4.15	Spike	P	0 - 20
1906988	Copper	0.883	Spike	P	0 - 20
1906988	Lead	0.294	Spike	P	0 - 20
1906988	Nickel	2.34	Spike	P	0 - 20
1906988	Silver	4.24	Spike	P	0 - 20
1906988	Zinc	3.86	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906547	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907024	Kjeldahl Nitrogen	1.84	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907074	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907022	Total-P	2.94	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907027	O-Phosphate-P	1.76	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P327044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906947	Sucralose	16.7	Spike	P	0 - 30

Reference Method: SM 2320 B-97
 Batch ID: P327372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907018	Total Alkalinity	0.0601	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
 Batch ID: P327379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907018	Fluoride	2.44	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P327585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906931	Organic Carbon	0.969	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P326835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906079	2,4-D	1.38	Spike	P	0 - 30
1906079	Acetaminophen	3.43	Spike	P	0 - 30
1906079	Bentazon	2.70	Spike	P	0 - 30
1906079	Carbamazepine	5.08	Spike	P	0 - 30
1906079	Diuron	6.44	Spike	P	0 - 30
1906079	Fenuron	7.31	Spike	P	0 - 30
1906079	Fluridone	2.72	Spike	P	0 - 30
1906079	Imidacloprid	2.77	Spike	P	0 - 30
1906079	Linuron	8.71	Spike	P	0 - 30
1906079	MCPP	2.98	Spike	P	0 - 30
1906079	Primidone	0.905	Spike	P	0 - 30
1906079	Triclopyr	7.47	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

Quality Assurance Report Surrogates

Lab Sample ID: 1907081
Field Sample ID: G5CE0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	75.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	69.6	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	110	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	130	P	30 - 160
USGS O-2060-01	Diuron-d6	108	P	30 - 160
USGS O-2060-01	Primidone-d5	113	P	30 - 150

Lab Sample ID: 1907082
Field Sample ID: G5CE0090 DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	92.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	71.4	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	102	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	129	P	30 - 160
USGS O-2060-01	Diuron-d6	114	P	30 - 160
USGS O-2060-01	Primidone-d5	124	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77147
Included Lab Sample IDs: 1907074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A77152
Included Lab Sample IDs: 1907075

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A77166
Included Lab Sample IDs: 1907073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77224
Included Lab Sample IDs: 1907074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77267

Included Lab Sample IDs: 1907074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A77273

Included Lab Sample IDs: 1907081, 1907082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	85.8	115	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A77282

Included Lab Sample IDs: 1907083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	101	P/P	95 - 105

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77287

Included Lab Sample IDs: 1907074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77291

Included Lab Sample IDs: 1907073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77291

Included Lab Sample IDs: 1907073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.1	98.1	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A77371

Included Lab Sample IDs: 1907081, 1907082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	86.8	84.8	P/P	50 - 150
Acetaminophen	107	104	P/P	60 - 150
Bentazon	91.2	88.0	P/P	50 - 150
Carbamazepine	108	115	P/P	60 - 150
Diuron	105	111	P/P	60 - 150
Fenuron	104	106	P/P	60 - 150
Fluridone	99.6	105	P/P	60 - 160
Imidacloprid	99.6	101	P/P	60 - 150
Linuron	103	106	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A77371

Included Lab Sample IDs: 1907081, 1907082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
MCPPP	89.2	85.6	P/P	50 - 150
Primidone	103	111	P/P	60 - 150
Triclopyr	90.8	91.6	P/P	50 - 150

Reference Method: SM 5310 B-00

Run ID: A77378

Included Lab Sample IDs: 1907074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77444

Included Lab Sample IDs: 1907083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	95.3	95.6	P/P	90 - 110
Cadmium	98.7	96.5	P/P	90 - 110
Chromium	99.7	99.7	P/P	90 - 110
Copper	98.1	97.9	P/P	90 - 110
Lead	101	100	P/P	90 - 110
Nickel	98.9	99.2	P/P	90 - 110
Silver	97.6	96.6	P/P	90 - 110
Zinc	96.8	96.3	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				9.14	
EPA 200.7 Rev. 4.4	Iron	104	101 102			0.925
EPA 200.8 Rev. 5.4	Arsenic	95.0	91.1 95.0			3.99
	Cadmium	99.0	85.4 89.3			4.48
	Chromium	98.6	94.5 98.5			4.15
	Copper	97.9	91.3 92.1			0.883
	Lead	99.0	102 102			0.294
	Nickel	99.5	89.5 91.6			2.34
	Silver	97.8	83.3 86.9			4.24
	Zinc	94.4	80.6 83.8			3.86
EPA 350.1 Rev. 2.0	Ammonia-N	101	101 103			1.34
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.0 101			1.84
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103 103			0.0
EPA 365.1 Rev. 2.0	Total-P	96.4	100 97.4			2.94
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	91.6 93.3			1.76
EPA 8321B	Sucralose	89.5	111 93.6			16.7

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision SMP	MS
SM 2320 B-97	Total Alkalinity	104				0.0601	
SM 4500 F-C-97	Fluoride	94.7	96.7	99.8			2.44
SM 5310 B-00	Organic Carbon	95.8	95.6	94.6			0.969
USGS O-2060-01	2,4-D	70.8	73.2	72.2			1.38
	Acetaminophen	30.4	119	115			3.43
	Bentazon	62.4	30.0	31.2			2.70
	Carbamazepine	115	92.0	96.8			5.08
	Diuron	112	75.2	80.2			6.44
	Fenuron	116	76.4	82.2			7.31
	Fluridone	101	58.0	59.6			2.72
	Imidacloprid	100	157	161			2.77
	Linuron	107	110	101			8.71
	MCPP	84.2	59.6	61.4			2.98
	Primidone	115	88.8	88.0			0.905
	Triclopyr	87.8	69.4	64.4			7.47

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1907073
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1907083
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1907083
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1907074
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1907074
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1907074
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1907074
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1907075
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1907081, 1907082
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1907073
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1907073
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1907073
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1907074
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1907081, 1907082
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1907081, 1907082

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	06/16/2017			06/16/2017 16:39	Blanca Fach	1907073
EPA 200.7 Rev. 4.4	06/16/2017	06/20/2017	Elliott D. Healy	06/22/2017	Betina Topolski	1907083
EPA 200.8 Rev. 5.4	06/16/2017	06/20/2017	Elliott D. Healy	06/29/2017	Robert K Palmer	1907083
EPA 350.1 Rev. 2.0	06/16/2017			06/16/2017	Sofia Elnemr	1907074
EPA 351.2 Rev. 2.0	06/16/2017	06/21/2017	Adrian Shelby	06/22/2017	Tanya Welborn	1907074
EPA 353.2 Rev. 2.0	06/16/2017			06/20/2017	Beverly Y. Sanders	1907074
EPA 365.1 Rev. 2.0	06/16/2017	06/21/2017	Vijayalakshmi Reddy	06/22/2017	Lipi Saha	1907074
EPA 365.1 Rev. 2.0 dissolved	06/16/2017			06/16/2017 17:09	Anthony C. Onicha	1907075
EPA 8321B	06/16/2017	06/19/2017	Mohammad Ghaffari	06/21/2017	Mohammad Ghaffari	1907081, 1907082
SM 2320 B-97	06/16/2017			06/22/2017	Dale L. Simmons	1907073
SM 2540 D-97	06/16/2017			06/21/2017	Yijie Li	1907073
SM 4500 F-C-97	06/16/2017			06/22/2017	Dale L. Simmons	1907073
SM 5310 B-00	06/16/2017			06/28/2017	Ping Hua	1907074
USGS O-2060-01	06/16/2017	06/19/2017	Hoor Shaik	06/25/2017	Juyoung Kim	1907081, 1907082