

Chemical Analysis Report

SO-DIST-2018-04-10-01

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

Event Description: **Myakka Streams**
Request ID: **RQ-2018-04-09-38**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Date Certified: 14-MAY-2018 17:14



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: MyakkaRiver(Tidal)@US41

Collection Date/Time: 04/09/2018 09:50

Field ID: G3SD0068

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982942	EPA 8321B	2,4-D	0.0020	U	ug/L	P342880	
		Bentazon	0.0024	I	ug/L	P342880	
		MCP	0.0020	U	ug/L	P342880	
		Triclopyr**	0.0040	U	ug/L	P342880	
		Imidacloprid	0.0099		ug/L	P342880	MS
		Diuron	0.0078	I	ug/L	P342880	
		Pyraclostrobin**	0.0020	U	ug/L	P342880	
		Primidone**	0.0040	U	ug/L	P342880	
		Linuron	0.0040	U	ug/L	P342880	
		Acetaminophen**	0.0080	U	ug/L	P342880	MS
		Fenuron	0.016	U	ug/L	P342880	
		Imazapyr**	0.022		ug/L	P342880	
		Carbamazepine**	0.0013	I	ug/L	P342880	
		Fluridone**	0.034		ug/L	P342880	
		Hydrocodone**	8.0E-04	U	ug/L	P342880	
		Sucralose**	0.10	U	ug/L	P343078	

Sample Location: Rock Creek@EisenhowerDr

Collection Date/Time: 04/09/2018 10:20

Field ID: G3SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982911	EPA 180.1 Rev. 2.0	Turbidity	6.5	A	NTU	P343150	
	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P343852	
	SM 2540 D-97	TSS	15		mg/L	P343865	
	SM 4500 F-C-97	Fluoride	0.88		mg F/L	P343855	
1982914	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P343448	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P343171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P343387	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P343241	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P343333	
1982917	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P343139	
1982945	EPA 200.7 Rev. 4.4	Iron	510		ug/L	P343226	
	EPA 200.8 Rev. 5.4	Arsenic	2.34		ug/L	P343226	
		Cadmium	0.060	U	ug/L	P343226	
		Chromium	1.2	U	ug/L	P343226	
		Copper	0.61	I	ug/L	P343226	
		Lead	0.50	U	ug/L	P343226	
		Nickel	0.60	U	ug/L	P343226	
		Silver	0.030	U	ug/L	P343226	
		Zinc	3.0	U	ug/L	P343226	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Apollo Waterway @ Bend

Collection Date/Time: 04/09/2018 10:55

Field ID: G3SD0069

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982912	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P343150	
	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P343852	
	SM 2540 D-97	TSS	8	IA	mg/L	P343865	
	SM 4500 F-C-97	Fluoride	0.91		mg F/L	P343855	
1982915	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P343448	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P343171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P343387	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P343241	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P343333	
1982918	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P343139	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Little Alligator@Midway

Collection Date/Time: 04/09/2018 11:30

Field ID: G3SD0071

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1982913	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P343150	
	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P343852	
	SM 2540 D-97	TSS	5	I	mg/L	P343865	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P343855	
1982916	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P343448	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P343171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P343387	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P343241	
	SM 5310 B-00	Organic Carbon	7.9		mg C/L	P343574	
1982919	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P343139	
1982946	EPA 200.7 Rev. 4.4	Iron	190	I	ug/L	P343226	
	EPA 200.8 Rev. 5.4	Arsenic	3.07		ug/L	P343226	
		Cadmium	0.080	U	ug/L	P343226	
		Chromium	1.6	U	ug/L	P343226	
		Copper	0.80	U	ug/L	P343226	
		Lead	0.50	U	ug/L	P343226	
		Nickel	0.80	U	ug/L	P343226	
		Silver	0.040	U	ug/L	P343226	
		Zinc	4.0	U	ug/L	P343226	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343150

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343226

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343226

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
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343448

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343171

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343387

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343241

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343139

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P342880

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	0.0020	U	ug/L
Fenuron	0.021	I	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P343078

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P343852

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

Reference Method: SM 2540 D-97
Batch ID: P343865

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343855

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343333

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

Reference Method: SM 5310 B-00
Batch ID: P343574

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P343226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P343226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	107		P	85 - 115
Chromium	104		P	85 - 115
Copper	98.9		P	85 - 115
Lead	98.9		P	85 - 115
Nickel	98.7		P	85 - 115
Silver	109		P	85 - 115
Zinc	99.0		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343448

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P343171

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P343387

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P343241

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P343139

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.5		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P342880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	100		P	40 - 150
Acetaminophen	120		P	30 - 150
Bentazon	109		P	30 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P342880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Carbamazepine	84.9		P	40 - 150
Diuron	65.1		P	40 - 150
Fenuron	124		P	40 - 150
Fluridone	60.3		P	40 - 150
Hydrocodone	112		P	40 - 150
Imazapyr	88.7		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	78.1		P	40 - 150
MCPP	92.3		P	40 - 150
Primidone	108		P	40 - 150
Pyraclostrobin	70.8		P	40 - 150
Triclopyr	91.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	114		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P343852

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343855

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P343574

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982946	Iron	101	93.7	P/P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982946	Arsenic	112	114	P/P	70 - 130
1982946	Cadmium	99.4	105	P/P	70 - 130
1982946	Chromium	96.5	96.7	P/P	70 - 130
1982946	Copper	103	103	P/P	70 - 130
1982946	Lead	108	115	P/P	70 - 130
1982946	Nickel	104	104	P/P	70 - 130
1982946	Silver	102	103	P/P	70 - 130
1982946	Zinc	88.0	87.9	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343448

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981770	Ammonia-N	99.0	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983067	Kjeldahl Nitrogen	97.3	96.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982914	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983071	Total-P	95.6	94.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P342880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983038	2,4-D	103	106	P/P	40 - 150
1983038	Acetaminophen	162	156	F/F	30 - 150
1983038	Bentazon	36.3	30.2	P/P	30 - 150
1983038	Carbamazepine	105	108	P/P	40 - 150
1983038	Diuron	73.9	71.7	P/P	40 - 150
1983038	Fenuron	110	104	P/P	40 - 150
1983038	Fluridone	47.2	56.1	P/P	40 - 150
1983038	Hydrocodone	123	116	P/P	40 - 150
1983038	Imazapyr	109	92.7	P/P	40 - 150
1983038	Imidacloprid	248	233	F/F	40 - 160
1983038	Linuron	82.0	91.2	P/P	40 - 150
1983038	MCP	75.1	83.1	P/P	40 - 150
1983038	Primidone	108	113	P/P	40 - 150
1983038	Pyraclostrobin	53.9	65.6	P/P	40 - 150
1983038	Triclopyr	78.5	83.4	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P343078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981837	Sucralose	91.5	86.4	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P343855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983771	Fluoride	94.1	95.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981293	Organic Carbon	91.3	94.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P343574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982916	Organic Carbon	96.8	97.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982911	Turbidity	3.40	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982946	Iron	7.85	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P343226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982946	Arsenic	1.76	Spike	P	0 - 20
1982946	Cadmium	5.20	Spike	P	0 - 20
1982946	Chromium	0.203	Spike	P	0 - 20
1982946	Copper	0.459	Spike	P	0 - 20
1982946	Lead	6.25	Spike	P	0 - 20
1982946	Nickel	0.144	Spike	P	0 - 20
1982946	Silver	0.687	Spike	P	0 - 20
1982946	Zinc	0.0269	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981770	Ammonia-N	2.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983067	Kjeldahl Nitrogen	0.542	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982914	NO2NO3-N	0.969	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983071	Total-P	1.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982918	O-Phosphate-P	0.712	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P342880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983038	2,4-D	2.47	Spike	P	0 - 30
1983038	Acetaminophen	3.67	Spike	P	0 - 30
1983038	Bentazon	16.4	Spike	P	0 - 30
1983038	Carbamazepine	3.18	Spike	P	0 - 30
1983038	Diuron	0.849	Spike	P	0 - 30
1983038	Fenuron	6.05	Spike	P	0 - 30
1983038	Fluridone	17.3	Spike	P	0 - 30
1983038	Hydrocodone	6.02	Spike	P	0 - 30
1983038	Imazapyr	14.2	Spike	P	0 - 30
1983038	Imidacloprid	6.33	Spike	P	0 - 30
1983038	Linuron	10.7	Spike	P	0 - 30
1983038	MCP	10.1	Spike	P	0 - 30
1983038	Primidone	4.90	Spike	P	0 - 30
1983038	Pyraclostrobin	19.5	Spike	P	0 - 30
1983038	Triclopyr	5.98	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P343078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981837	Sucralose	5.76	Spike	P	0 - 30

Reference Method: SM 2320 B-97
 Batch ID: P343852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983771	Total Alkalinity	0.393	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
 Batch ID: P343855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983771	Fluoride	0.986	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P343333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981293	Organic Carbon	2.53	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P343574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982916	Organic Carbon	0.342	Spike	P	0 - 20

* 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: 1982942
 Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	124	P	30 - 160
EPA 8321B	Carbamazepine-d10	124	P	30 - 160
EPA 8321B	Diuron-d6	91.1	P	30 - 160
EPA 8321B	Diuron-d6	91.1	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1982942
Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	51.4	P	40 - 160
EPA 8321B	Sucralose-d6	51.4	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83150
Included Lab Sample IDs: 1982917, 1982918, 1982919

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83154
Included Lab Sample IDs: 1982911, 1982912, 1982913

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.0	P/P	95 - 105

Reference Method: EPA 8321B
Run ID: A83192
Included Lab Sample IDs: 1982942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	110	103	P/P	60 - 130

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83202
Included Lab Sample IDs: 1982945, 1982946

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.9	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83211
Included Lab Sample IDs: 1982914, 1982915

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83219
Included Lab Sample IDs: 1982914, 1982915, 1982916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	105	P/P	90 - 110
Kjeldahl Nitrogen	107	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83233

Included Lab Sample IDs: 1982914, 1982915, 1982916

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A83248

Included Lab Sample IDs: 1982945, 1982946

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	105	105	P/P	90 - 110
Cadmium	103	104	P/P	90 - 110
Chromium	101	99.9	P/P	90 - 110
Copper	101	98.5	P/P	90 - 110
Lead	97.5	98.9	P/P	90 - 110
Nickel	101	99.6	P/P	90 - 110
Silver	102	102	P/P	90 - 110
Zinc	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83249

Included Lab Sample IDs: 1982914, 1982915, 1982916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83283

Included Lab Sample IDs: 1982942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	85.4	88.6	P/P	50 - 150
Acetaminophen	99.5	114	P/P	60 - 150
Bentazon	82.9	79.3	P/P	50 - 150
Carbamazepine	104	99.4	P/P	60 - 150
Diuron	106	111	P/P	60 - 150
Fenuron	110	119	P/P	60 - 150
Fluridone	98.9	92.0	P/P	60 - 160
Hydrocodone	113	112	P/P	60 - 150
Imazapyr	87.5	99.1	P/P	50 - 150
Imidacloprid	108	111	P/P	60 - 150
Linuron	104	107	P/P	60 - 150
MCPP	94.2	94.2	P/P	50 - 150
Primidone	105	98.8	P/P	60 - 150
Pyraclostrobin	113	107	P/P	60 - 150
Triclopyr	95.7	96.4	P/P	50 - 150

Reference Method: SM 5310 B-00

Run ID: A83288

Included Lab Sample IDs: 1982916

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83320

Included Lab Sample IDs: 1982914, 1982915, 1982916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	104	P/P	90 - 110
Total-P	104	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83392

Included Lab Sample IDs: 1982911, 1982912, 1982913

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83392

Included Lab Sample IDs: 1982911, 1982912, 1982913

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	97.6	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				3.40	
EPA 200.7 Rev. 4.4	Iron	103	101 93.7			7.85
EPA 200.8 Rev. 5.4	Arsenic	102	112 114			1.76
	Cadmium	107	99.4 105			5.20
	Chromium	104	96.5 96.7			0.203
	Copper	98.9	103 103			0.459
	Lead	98.9	108 115			6.25
	Nickel	98.7	104 104			0.144
	Silver	109	102 103			0.687
	Zinc	99.0	88.0 87.9			0.0269
EPA 350.1 Rev. 2.0	Ammonia-N	105	99.0 103			2.97
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	97.3 96.7			0.542
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	101 102			0.969
EPA 365.1 Rev. 2.0	Total-P	104	95.6 94.4			1.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5				0.712
EPA 8321B	2,4-D	100	103 106			2.47
	Acetaminophen	120	162 156			3.67
	Bentazon	109	36.3 30.2			16.4
	Carbamazepine	84.9	108 105			3.18
	Diuron	65.1	73.9 71.7			0.849
	Fenuron	124	110 104			6.05
	Fluridone	60.3	56.1 47.2			17.3
	Hydrocodone	112	123 116			6.02
	Imazapyr	88.7	109 92.7			14.2

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Imidacloprid	115	248	233		6.33
	Linuron	78.1	82.0	91.2		10.7
	MCPP	92.3	75.1	83.1		10.1
	Primidone	108	108	113		4.90
	Pyraclostrobin	70.8	53.9	65.6		19.5
	Sucralose	114	91.5	86.4		5.76
	Triclopyr	91.0	78.5	83.4		5.98
	Total Alkalinity	98.7			0.393	
SM 2320 B-97	Fluoride	96.5	94.1	95.6		0.986
SM 4500 F-C-97	Organic Carbon	97.6	91.3	94.5		2.53
SM 5310 B-00	Organic Carbon	99.8	96.8	97.2		0.342

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1982911, 1982912, 1982913
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1982945, 1982946
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1982945, 1982946
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1982914, 1982915, 1982916
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1982914, 1982915, 1982916
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1982914, 1982915, 1982916
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1982914, 1982915, 1982916
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1982917, 1982918, 1982919
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1982942
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1982911, 1982912, 1982913
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1982911, 1982912, 1982913
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1982911, 1982912, 1982913
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1982914, 1982915, 1982916

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	04/10/2018			04/10/2018 18:04	William L. Brown IV	1982911, 1982912, 1982913
EPA 200.7 Rev. 4.4	04/10/2018	04/11/2018 18:30	Elliott D. Healy	04/12/2018 20:40	Betina Topolski	1982945
	04/10/2018	04/11/2018 18:30	Elliott D. Healy	04/12/2018 20:52	Betina Topolski	1982946
EPA 200.8 Rev. 5.4	04/10/2018	04/11/2018 18:30	Elliott D. Healy	04/13/2018 22:43	Nadine Brooks	1982945
	04/10/2018	04/11/2018 18:30	Elliott D. Healy	04/13/2018 23:02	Nadine Brooks	1982946
	04/10/2018	04/11/2018 18:30	Elliott D. Healy	04/14/2018 01:27	Nadine Brooks	1982945
	04/10/2018	04/11/2018 18:30	Elliott D. Healy	04/14/2018 02:05	Nadine Brooks	1982946
EPA 350.1 Rev. 2.0	04/10/2018			04/13/2018 17:04	Julia Storbeck	1982914
	04/10/2018			04/13/2018 17:05	Julia Storbeck	1982916
	04/10/2018			04/13/2018 17:07	Julia Storbeck	1982915
EPA 351.2 Rev. 2.0	04/10/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 09:40	Joseph Suarez	1982914
	04/10/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 09:44	Joseph Suarez	1982915
	04/10/2018	04/11/2018 10:30	Adrian Shelby	04/13/2018 09:46	Joseph Suarez	1982916
EPA 353.2 Rev. 2.0	04/10/2018			04/13/2018 11:51	Lauren Bottorf	1982914
	04/10/2018			04/13/2018 12:04	Lauren Bottorf	1982915
	04/10/2018			04/13/2018 12:05	Lauren Bottorf	1982916
EPA 365.1 Rev. 2.0	04/10/2018	04/12/2018 12:40	Sima Feizi	04/13/2018 13:02	Beverly Y. Sanders	1982914
	04/10/2018	04/12/2018 12:40	Sima Feizi	04/13/2018 13:03	Beverly Y. Sanders	1982915
	04/10/2018	04/12/2018 12:40	Sima Feizi	04/13/2018 13:06	Beverly Y. Sanders	1982916
EPA 365.1 Rev. 2.0 dissolved	04/10/2018			04/10/2018 15:24	Megan Treadwell	1982918
	04/10/2018			04/10/2018 15:27	Megan Treadwell	1982917
	04/10/2018			04/10/2018 15:28	Megan Treadwell	1982919
EPA 8321B	04/10/2018	04/10/2018 13:00	Julie Michelle Frank	04/10/2018 15:41	Julie Michelle Frank	1982942
	04/10/2018	04/11/2018 09:00	Hoor Shaik	04/13/2018 10:59	Julie Michelle Frank	1982942
	04/10/2018	04/11/2018 09:00	Hoor Shaik	04/14/2018 03:07	Julie Michelle Frank	1982942
SM 2320 B-97	04/10/2018			04/21/2018 01:17	Lauren Bottorf	1982911
	04/10/2018			04/21/2018 01:27	Lauren Bottorf	1982912
	04/10/2018			04/21/2018 01:37	Lauren Bottorf	1982913
SM 2540 D-97	04/10/2018			04/11/2018 15:02	Yijie Li	1982911, 1982912, 1982913
SM 4500 F-C-97	04/10/2018			04/20/2018 23:54	Lauren Bottorf	1982911
	04/10/2018			04/20/2018 23:58	Lauren Bottorf	1982912
	04/10/2018			04/21/2018 00:02	Lauren Bottorf	1982913
SM 5310 B-00	04/10/2018			04/12/2018 14:14	Julia Storbeck	1982914
	04/10/2018			04/12/2018 14:30	Julia Storbeck	1982915
	04/10/2018			04/17/2018 05:50	Megan Treadwell	1982916