

Chemical Analysis Report

SO-DIST-2018-03-08-02

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

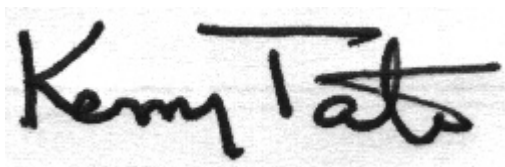
Event Description: **Myakka Streams**
Request ID: **RQ-2018-03-05-55**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Maryann Dugan

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 20-APR-2018 09:19

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

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: 03/07/2018 10:40

Field ID: G3SD0068

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1973101	EPA 8321B	2,4-D	0.0020	U	ug/L	P341079	
		Sucralose**	0.27		ug/L	P341049	
		Bentazon	0.0038		ug/L	P341079	
		MCP	0.0020	U	ug/L	P341079	
		Triclopyr**	0.0040	U	ug/L	P341079	
		Imidacloprid	0.0048	I	ug/L	P341079	MS
		Diuron	0.0099		ug/L	P341079	
		Primidone**	0.0040	U	ug/L	P341079	
		Linuron	0.0040	U	ug/L	P341079	
		Acetaminophen**	0.0080	U	ug/L	P341079	
		Fenuron	0.0080	U	ug/L	P341079	
		Imazapyr**	0.017		ug/L	P341079	
		Carbamazepine**	0.0014	I	ug/L	P341079	
		Fluridone**	0.023		ug/L	P341079	

Sample Location: Rock Creek@EisenhowerDr

Collection Date/Time: 03/07/2018 11:20

Field ID: G3SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1973088	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P341221	
	SM 2320 B-97	Total Alkalinity	125		mg CaCO3/L	P341725	
	SM 2540 D-97	TSS	3	U	mg/L	P341393	
	SM 4500 F-C-97	Fluoride	0.75		mg F/L	P341828	
1973090	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P341496	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P341433	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341484	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P341383	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P341974	
1973092	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P341264	
1973102	EPA 200.7 Rev. 4.4	Iron	150	I	ug/L	P341449	
		Zinc	15	U	ug/L	P341449	
	EPA 200.8 Rev. 5.4	Arsenic	2.07		ug/L	P341449	
		Cadmium	0.060	U	ug/L	P341449	
		Chromium	1.2	U	ug/L	P341449	
		Copper	0.71	I	ug/L	P341449	
		Lead	0.15	U	ug/L	P341449	
		Nickel	0.60	U	ug/L	P341449	
		Silver	0.030	U	ug/L	P341449	

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: 03/07/2018 11:50

Field ID: G3SD0069

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1973094	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P341221	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P341725	
	SM 2540 D-97	TSS	5	IA	mg/L	P341393	
	SM 4500 F-C-97	Fluoride	0.80		mg F/L	P341828	
1973095	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P341496	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P341433	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341485	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P341383	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P341974	
1973096	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P341264	

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: 03/07/2018 12:30

Field ID: G3SD0071

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1973089	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P341221	
	SM 2320 B-97	Total Alkalinity	139		mg CaCO3/L	P341725	
	SM 2540 D-97	TSS	4	I	mg/L	P341393	
	SM 4500 F-C-97	Fluoride	0.93		mg F/L	P341828	
1973091	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P341496	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P341433	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P341484	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P341383	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P341974	
1973093	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P341264	
1973103	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P341449	
		Zinc	15	U	ug/L	P341449	
	EPA 200.8 Rev. 5.4	Arsenic	2.84		ug/L	P341449	
		Cadmium	0.060	U	ug/L	P341449	
		Chromium	1.2	U	ug/L	P341449	
		Copper	0.93	I	ug/L	P341449	
		Lead	0.15	U	ug/L	P341449	
		Nickel	0.71	I	ug/L	P341449	
		Silver	0.030	U	ug/L	P341449	

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: P341221

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341449

Component	Result	Code	Units
Iron	30	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341449

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341496

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341433

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341484

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341485

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341383

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341264

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

Reference Method: EPA 8321B
Batch ID: P341049

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P341079

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	0.0080	U	ug/L
Fluridone	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
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P341725

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

Reference Method: SM 2540 D-97
Batch ID: P341393

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P341828

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P341974

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: P341449

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	109		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341449

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	80 - 120
Cadmium	102		P	80 - 120
Chromium	105		P	85 - 115
Copper	101		P	80 - 120
Lead	103		P	80 - 120
Nickel	101		P	80 - 120
Silver	107		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341496

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341433

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341484

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341485

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341383

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341264

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P341049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	92.2		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P341079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	67.5		P	40 - 150
Acetaminophen	95.6		P	30 - 150
Bentazon	99.3		P	30 - 150
Carbamazepine	84.7		P	40 - 150
Diuron	66.5		P	40 - 150
Fenuron	103		P	40 - 150
Fluridone	66.9		P	40 - 150
Imazapyr	81.0		P	40 - 150
Imidacloprid	98.3		P	40 - 160
Linuron	76.4		P	40 - 150
MCPP	75.6		P	40 - 150
Primidone	98.6		P	40 - 150
Triclopyr	71.5		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P341725

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.1		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P341828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.6		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P341974

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P341449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973056	Iron	108	109	P/P	80 - 120
1973056	Zinc	109	106	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973056	Arsenic	110	108	P/P	70 - 130
1973056	Cadmium	102	99.7	P/P	70 - 130
1973056	Chromium	92.7	93.2	P/P	70 - 130
1973056	Copper	102	100	P/P	70 - 130
1973056	Lead	111	109	P/P	70 - 130
1973056	Nickel	102	100	P/P	70 - 130
1973056	Silver	100	99.2	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341496

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972417	Ammonia-N	97.9	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973538	Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973861	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973095	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973001	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P341049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972405	Sucralose	107	101	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P341079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972737	2,4-D	49.6	48.1	P/P	40 - 150
1972737	Acetaminophen	124	131	P/P	30 - 150
1972737	Bentazon	76.5	81.5	P/P	30 - 150
1972737	Carbamazepine	76.6	77.1	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P341079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972737	Diuron	65.9	63.4	P/P	40 - 150
1972737	Fenuron	81.0	80.5	P/P	40 - 150
1972737	Fluridone	56.3	63.6	P/P	40 - 150
1972737	Imazapyr	57.3	51.2	P/P	40 - 150
1972737	Imidacloprid	179	173	F/F	40 - 160
1972737	Linuron	84.5	77.7	P/P	40 - 150
1972737	MCP	52.0	51.9	P/P	40 - 150
1972737	Primidone	106	116	P/P	40 - 150
1972737	Triclopyr	50.9	56.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P341828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972478	Fluoride	92.1	94.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P341974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1973091	Organic Carbon	98.8	99.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973053	Turbidity	1.63	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P341449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973056	Iron	0.619	Spike	P	0 - 20
1973056	Zinc	1.22	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973056	Arsenic	1.85	Spike	P	0 - 20
1973056	Cadmium	1.49	Spike	P	0 - 20
1973056	Chromium	0.561	Spike	P	0 - 20
1973056	Copper	2.04	Spike	P	0 - 20
1973056	Lead	1.18	Spike	P	0 - 20
1973056	Nickel	1.87	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P341449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973056	Silver	1.09	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341496

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972417	Ammonia-N	0.999	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973538	Kjeldahl Nitrogen	0.900	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973861	NO2NO3-N	0.980	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973095	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973001	Total-P	2.75	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973092	O-Phosphate-P	0.744	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P341049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972405	Sucralose	4.52	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P341079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972737	2,4-D	2.99	Spike	P	0 - 30
1972737	Acetaminophen	5.48	Spike	P	0 - 30
1972737	Bentazon	4.95	Spike	P	0 - 30
1972737	Carbamazepine	0.749	Spike	P	0 - 30
1972737	Diuron	3.39	Spike	P	0 - 30
1972737	Fenuron	0.669	Spike	P	0 - 30
1972737	Fluridone	8.57	Spike	P	0 - 30
1972737	Imazapyr	4.30	Spike	P	0 - 30
1972737	Imidacloprid	3.36	Spike	P	0 - 30
1972737	Linuron	8.45	Spike	P	0 - 30
1972737	MCP	0.250	Spike	P	0 - 30
1972737	Primidone	7.83	Spike	P	0 - 30
1972737	Triclopyr	9.43	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P341725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973471	Total Alkalinity	0.388	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P341828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972478	Fluoride	1.43	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P341974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1973091	Organic Carbon	0.211	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: 1973101
Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	49.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	127	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.8	P	30 - 160
EPA 8321B	Diuron-d6	68.0	P	30 - 160
EPA 8321B	Primidone-d5	105	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1973101
Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	106	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82508
Included Lab Sample IDs: 1973088, 1973089, 1973094

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82516
Included Lab Sample IDs: 1973092, 1973093, 1973096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	97.7	P/P	90 - 110
O-Phosphate-P	98.8	97.9	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A82544
Included Lab Sample IDs: 1973101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	109	89.8	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82566
Included Lab Sample IDs: 1973090, 1973091, 1973095

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82579
Included Lab Sample IDs: 1973090, 1973091, 1973095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A82580
Included Lab Sample IDs: 1973101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	88.6	P/P	50 - 150
Acetaminophen	99.9	100	P/P	60 - 150
Bentazon	136	132	P/P	50 - 150
Carbamazepine	95.2	101	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A82580
Included Lab Sample IDs: 1973101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	95.8	98.4	P/P	60 - 150
Fenuron	91.3	88.5	P/P	60 - 150
Fluridone	99.2	95.1	P/P	60 - 160
Imazapyr	76.0	70.4	P/P	50 - 150
Imidacloprid	93.7	86.7	P/P	60 - 150
Linuron	110	98.6	P/P	60 - 150
MCPP	105	91.5	P/P	50 - 150
Primidone	92.7	105	P/P	60 - 150
Triclopyr	98.2	95.6	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A82584
Included Lab Sample IDs: 1973090, 1973091, 1973095

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A82617
Included Lab Sample IDs: 1973102, 1973103

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A82628
Included Lab Sample IDs: 1973090, 1973091, 1973095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	101	P/P	90 - 110
Kjeldahl Nitrogen	96.1	104	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A82678
Included Lab Sample IDs: 1973088, 1973089, 1973094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A82726
Included Lab Sample IDs: 1973088, 1973089, 1973094

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A82777

Included Lab Sample IDs: 1973090, 1973091, 1973095

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.6	P/P	90 - 110
Organic Carbon	99.6	99.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A82821

Included Lab Sample IDs: 1973102, 1973103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.0	99.2	P/P	90 - 110
Cadmium	100	101	P/P	90 - 110
Copper	100	99.8	P/P	90 - 110
Lead	102	102	P/P	90 - 110
Nickel	98.8	99.1	P/P	90 - 110
Silver	105	105	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A82886

Included Lab Sample IDs: 1973102, 1973103

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	95.2	95.6	P/P	90 - 110
Chromium	95.6	95.2	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.63	
EPA 200.7 Rev. 4.4	Iron	109	108	109		0.619
	Zinc	104	109	106		1.22
EPA 200.8 Rev. 5.4	Arsenic	101	110	108		1.85
	Cadmium	102	102	99.7		1.49
	Chromium	105	92.7	93.2		0.561
	Copper	101	102	100		2.04
	Lead	103	111	109		1.18
	Nickel	101	102	100		1.87
	Silver	107	100	99.2		1.09
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	97.9	99.7		0.999
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	106	105		0.900
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102		0.980
	NO2NO3-N	104	101	101		0.494
EPA 365.1 Rev. 2.0	Total-P	99.9	101	103		2.75
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.0				0.744
EPA 8321B	2,4-D	67.5	49.6	48.1		2.99
	Acetaminophen	95.6	124	131		5.48

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Bentazon	99.3	76.5	81.5			4.95
	Carbamazepine	84.7	76.6	77.1			0.749
	Diuron	66.5	65.9	63.4			3.39
	Fenuron	103	81.0	80.5			0.669
	Fluridone	66.9	56.3	63.6			8.57
	Imazapyr	81.0	57.3	51.2			4.30
	Imidacloprid	98.3	179	173			3.36
	Linuron	76.4	84.5	77.7			8.45
	MCP	75.6	52.0	51.9			0.250
	Primidone	98.6	106	116			7.83
	Sucralose	92.2	107	101			4.52
	Triclopyr	71.5	50.9	56.0			9.43
SM 2320 B-97	Total Alkalinity	98.1				0.388	
SM 4500 F-C-97	Fluoride	93.6	92.1	94.5			1.43
SM 5310 B-00	Organic Carbon	100	98.8	99.0			0.211

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1973088, 1973089, 1973094
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1973102, 1973103
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1973102, 1973103
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1973090, 1973091, 1973095
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1973090, 1973091, 1973095
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1973090, 1973091, 1973095
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1973090, 1973091, 1973095
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1973092, 1973093, 1973096
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1973101
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1973101
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1973088, 1973089, 1973094
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1973088, 1973089, 1973094
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1973088, 1973089, 1973094
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1973090, 1973091, 1973095

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	03/08/2018			03/08/2018 15:14	DeAsia Armster	1973088, 1973089, 1973094
EPA 200.7 Rev. 4.4	03/08/2018	03/13/2018 12:45	Elliott D. Healy	03/14/2018 18:39	Betina Topolski	1973102
	03/08/2018	03/13/2018 12:45	Elliott D. Healy	03/14/2018 18:51	Betina Topolski	1973103
EPA 200.8 Rev. 5.4	03/08/2018	03/13/2018 12:45	Elliott D. Healy	03/24/2018 03:01	Nadine Brooks	1973102
	03/08/2018	03/13/2018 12:45	Elliott D. Healy	03/24/2018 03:10	Nadine Brooks	1973103
	03/08/2018	03/13/2018 12:45	Elliott D. Healy	03/28/2018 03:17	Nadine Brooks	1973102
	03/08/2018	03/13/2018 12:45	Elliott D. Healy	03/28/2018 04:05	Nadine Brooks	1973103
EPA 350.1 Rev. 2.0	03/08/2018			03/12/2018 18:43	Ping Hua	1973090
	03/08/2018			03/12/2018 18:45	Ping Hua	1973091
	03/08/2018			03/12/2018 18:46	Ping Hua	1973095
EPA 351.2 Rev. 2.0	03/08/2018	03/13/2018 10:30	Adrian Shelby	03/15/2018 11:17	Joseph Suarez	1973090
	03/08/2018	03/13/2018 10:30	Adrian Shelby	03/15/2018 11:19	Joseph Suarez	1973091
	03/08/2018	03/13/2018 10:30	Adrian Shelby	03/15/2018 11:23	Joseph Suarez	1973095
EPA 353.2 Rev. 2.0	03/08/2018			03/13/2018 14:37	Lauren Bottorf	1973090
	03/08/2018			03/13/2018 14:38	Lauren Bottorf	1973091
	03/08/2018			03/13/2018 14:46	Lauren Bottorf	1973095
EPA 365.1 Rev. 2.0	03/08/2018	03/12/2018 01:30	Lipi Saha	03/13/2018 09:21	Beverly Y. Sanders	1973090
	03/08/2018	03/12/2018 01:30	Lipi Saha	03/13/2018 09:22	Beverly Y. Sanders	1973091
	03/08/2018	03/12/2018 01:30	Lipi Saha	03/13/2018 09:23	Beverly Y. Sanders	1973095
EPA 365.1 Rev. 2.0 dissolved	03/08/2018			03/08/2018 15:31	Megan Treadwell	1973092
	03/08/2018			03/08/2018 15:46	Megan Treadwell	1973093
	03/08/2018			03/08/2018 15:47	Megan Treadwell	1973096
EPA 8321B	03/08/2018	03/09/2018 12:00	Hoor Shaik	03/10/2018 02:29	Julie Michelle Frank	1973101
	03/08/2018	03/09/2018 12:00	Hoor Shaik	03/10/2018 19:47	Julie Michelle Frank	1973101
	03/08/2018	03/09/2018 14:00	Julie Michelle Frank	03/09/2018 19:11	Juyoung Kim	1973101
SM 2320 B-97	03/08/2018			03/16/2018 19:04	Lauren Bottorf	1973088
	03/08/2018			03/16/2018 19:14	Lauren Bottorf	1973089
	03/08/2018			03/16/2018 19:25	Lauren Bottorf	1973094
SM 2540 D-97	03/08/2018			03/09/2018 13:45	DeAsia Armster	1973088, 1973089, 1973094
SM 4500 F-C-97	03/08/2018			03/20/2018 06:43	Lauren Bottorf	1973088
	03/08/2018			03/20/2018 06:47	Lauren Bottorf	1973089
	03/08/2018			03/20/2018 06:51	Lauren Bottorf	1973094
SM 5310 B-00	03/08/2018			03/21/2018 08:45	Megan Treadwell	1973091
	03/08/2018			03/21/2018 10:20	Megan Treadwell	1973090
	03/08/2018			03/21/2018 10:34	Megan Treadwell	1973095