

Chemical Analysis Report

SO-DIST-2018-08-03-02

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

Event Description: **Sarasota Streams**
Request ID: **RQ-2018-08-06-46**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Colin Wright, Program Administrator

Date Certified: 27-AUG-2018 17:36

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored 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: 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: Phillippi Creek@Proctor

Collection Date/Time: 08/02/2018 10:20

Field ID: G3SD0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2012921	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P349642	
	EPA 300.0 Rev. 2.1	Chloride	49		mg Cl/L	P349781	
		Sulfate	86		mg SO4/L	P349782	
	SM 2120 B	Color (true)	98	A	PCU	P349634	
	SM 2320 B-97	Total Alkalinity	129	A	mg CaCO3/L	P350017	
	SM 2540 C-97	TDS	364	A	mg/L	P350058	
	SM 2540 D-97	TSS	5	IA	mg/L	P349956	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P350020	
2012923	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P349811	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P349717	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.29		mg N/L	P349678	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P349718	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P349851	
2012925	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P349692	

Ref. Method and Comment:

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

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

Sample Location: Matheny Creek @BenevaRd

Collection Date/Time: 08/02/2018 11:00

Field ID: G3SD0092

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2012955	EPA 8321B	2,4-D	0.0020	U	ug/L	P349520	
		Sucralose**	0.21		ug/L	P349536	
		Bentazon	0.017		ug/L	P349520	
		MCPD	0.0059	I	ug/L	P349520	
		Triclopyr**	0.0040	U	ug/L	P349520	
		Imidacloprid	0.060		ug/L	P349520	
		Diuron	0.0022	I	ug/L	P349520	
		Pyraclostrobin**	0.0020	U	ug/L	P349520	
		Primidone**	0.0040	U	ug/L	P349520	
		Linuron	0.0040	U	ug/L	P349520	
		Acetaminophen**	0.0080	U	ug/L	P349520	
		Fenuron	0.016	U	ug/L	P349520	
		Imazapyr**	0.68		ug/L	P349520	
		Carbamazepine**	8.0E-04	U	ug/L	P349520	
		Fluridone**	0.25		ug/L	P349520	
		Hydrocodone**	8.0E-04	U	ug/L	P349520	
		Naproxen**	0.0080	U	ug/L	P349520	
		Ibuprofen**	0.020	U	ug/L	P349520	

Sample Location: North Creek(Tidal)@US41

Collection Date/Time: 08/02/2018 11:25

Field ID: G3SD0089

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2012957	EPA 8321B	2,4-D	0.023		ug/L	P349520	
		Sucralose**	0.90		ug/L	P349536	
		Bentazon	0.011		ug/L	P349520	
		MCPD	0.0020	U	ug/L	P349520	
		Triclopyr**	0.0040	U	ug/L	P349520	
		Imidacloprid	0.049		ug/L	P349520	
		Diuron	0.0041	I	ug/L	P349520	
		Pyraclostrobin**	0.0020	U	ug/L	P349520	
		Primidone**	0.0065	I	ug/L	P349520	
		Linuron	0.0040	U	ug/L	P349520	
		Acetaminophen**	0.0080	U	ug/L	P349520	
		Fenuron	0.016	U	ug/L	P349520	
		Imazapyr**	0.61		ug/L	P349520	
		Carbamazepine**	0.0012	I	ug/L	P349520	
		Fluridone**	0.047		ug/L	P349520	
		Hydrocodone**	8.0E-04	U	ug/L	P349520	
		Naproxen**	0.0080	U	ug/L	P349520	
		Ibuprofen**	0.020	U	ug/L	P349520	

Sample Location: North Creek byOaksCrkCt

Collection Date/Time: 08/02/2018 12:00

Field ID: G3SD0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2012922	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P349642	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P349781	
		Sulfate	420		mg SO4/L	P349782	
	SM 2120 B	Color (true)	72		PCU	P349634	
	SM 2320 B-97	Total Alkalinity	341		mg CaCO3/L	P350017	
	SM 2540 C-97	TDS	1.09E+03		mg/L	P350058	
	SM 2540 D-97	TSS	4	I	mg/L	P349956	
	SM 4500 F-C-97	Fluoride	0.44		mg F/L	P350020	
2012924	EPA 350.1 Rev. 2.0	Ammonia-N	0.059		mg N/L	P349812	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P349717	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P349678	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P349759	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P349851	
2012926	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P349692	

Ref. Method and Comment:

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

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

Sample Location: South Creek @ HonoreAve

Collection Date/Time: 08/02/2018 12:35

Field ID: G3SD0090

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2012956	EPA 8321B	2,4-D	0.017		ug/L	P349520	
		Sucralose**	1.7		ug/L	P349536	
		Bentazon	0.065		ug/L	P349520	
		MCP	0.021		ug/L	P349520	
		Triclopyr**	0.0040	U	ug/L	P349520	
		Imidacloprid	0.026		ug/L	P349520	
		Diuron	0.0020	U	ug/L	P349520	
		Pyraclostrobin**	0.0020	U	ug/L	P349520	
		Primidone**	0.0076	I	ug/L	P349520	
		Linuron	0.0040	U	ug/L	P349520	
		Acetaminophen**	0.0080	U	ug/L	P349520	
		Fenuron	0.016	U	ug/L	P349520	
		Imazapyr**	0.22		ug/L	P349520	
		Carbamazepine**	0.0025	I	ug/L	P349520	
		Fluridone**	0.15		ug/L	P349520	
		Hydrocodone**	8.0E-04	U	ug/L	P349520	
		Naproxen**	0.0080	U	ug/L	P349520	
		Ibuprofen**	0.020	U	ug/L	P349520	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349642

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349781

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349782

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349811

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349812

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349717

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349678

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349718

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349759

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: P349692

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

Reference Method: EPA 8321B
Batch ID: P349520

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	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
Naproxen	0.0080	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: P349536

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P349634

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P350017

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

Reference Method: SM 2540 C-97
Batch ID: P350058

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349956

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P349956

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350020

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P349851

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349781

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349782

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349811

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349812

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349717

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349678

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349718

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349759

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P349520

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	85.0		P	40 - 150
Acetaminophen	99.0		P	30 - 150
Bentazon	54.5		P	30 - 150
Carbamazepine	102		P	40 - 150
Diuron	85.9		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	107		P	40 - 150
Hydrocodone	95.9		P	40 - 150
Ibuprofen	98.3		P	40 - 150
Imazapyr	91.0		P	40 - 150
Imidacloprid	108		P	40 - 160
Linuron	83.6		P	40 - 150
MCPP	97.7		P	40 - 150
Naproxen	94.4		P	40 - 150
Primidone	117		P	40 - 150
Pyraclostrobin	77.9		P	40 - 150
Triclopyr	104		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P349536

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

Reference Method: SM 2120 B
Batch ID: P349634

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350017

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P350020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349851

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012875	Chloride	94.1		P	90 - 110
2013556	Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012875	Sulfate	94.8		P	90 - 110
2013556	Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012713	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349812

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013576	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012876	NO2NO3-N	99.0	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012627	Total-P	96.2	93.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013574	Total-P	91.4	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012925	O-Phosphate-P	94.1	94.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P349520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012676	2,4-D	132	105	P/P	40 - 150
2012676	Acetaminophen	85.3	91.7	P/P	30 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P349520

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012676	Bentazon	70.1	63.0	P/P	30 - 150
2012676	Carbamazepine	85.0	87.7	P/P	40 - 150
2012676	Diuron	66.4	68.3	P/P	40 - 150
2012676	Fenuron	95.4	101	P/P	40 - 150
2012676	Fluridone	81.7	106	P/P	40 - 150
2012676	Hydrocodone	83.1	98.0	P/P	40 - 150
2012676	Ibuprofen	65.7	72.5	P/P	40 - 150
2012676	Imazapyr	98.6	97.8	P/P	40 - 150
2012676	Imidacloprid	135	134	P/P	40 - 160
2012676	Linuron	62.7	70.7	P/P	40 - 150
2012676	MCPP	136	131	P/P	40 - 150
2012676	Naproxen	66.6	55.4	P/P	40 - 150
2012676	Primidone	126	111	P/P	40 - 150
2012676	Pyraclostrobin	75.6	79.2	P/P	40 - 150
2012676	Triclopyr	138	140	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P349536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012397	Sucralose	114	103	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P350020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2012921	Fluoride	97.8	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349851

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2013574	Organic Carbon	93.6	93.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012873	Turbidity	1.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012875	Chloride	2.05	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012875	Sulfate	2.62	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012713	Ammonia-N	0.228	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2013576	Ammonia-N	0.358	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2013533	Kjeldahl Nitrogen	0.837	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012876	NO2NO3-N	0.378	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012627	Total-P	2.91	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P349759

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2013574	Total-P	3.34	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P349692

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012925	O-Phosphate-P	0.609	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P349520

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012676	2,4-D	21.3	Spike	P	0 - 30
2012676	Acetaminophen	7.28	Spike	P	0 - 30
2012676	Bentazon	9.64	Spike	P	0 - 30
2012676	Carbamazepine	3.15	Spike	P	0 - 30
2012676	Diuron	2.82	Spike	P	0 - 30
2012676	Fenuron	5.33	Spike	P	0 - 30
2012676	Fluridone	18.6	Spike	P	0 - 30
2012676	Hydrocodone	16.5	Spike	P	0 - 30
2012676	Ibuprofen	9.83	Spike	P	0 - 30
2012676	Imazapyr	0.485	Spike	P	0 - 30
2012676	Imidacloprid	0.420	Spike	P	0 - 30
2012676	Linuron	12.1	Spike	P	0 - 30
2012676	MCPP	3.74	Spike	P	0 - 30
2012676	Naproxen	18.4	Spike	P	0 - 30
2012676	Primidone	13.2	Spike	P	0 - 30
2012676	Pyraclostrobin	4.70	Spike	P	0 - 30
2012676	Triclopyr	1.47	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P349536

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012397	Sucralose	9.12	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P349634

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012921	Color (true)	0.509	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P350017

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P350017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012921	Total Alkalinity	0.485	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P350058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012921	TDS	6.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P350020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2012921	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P349851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2013574	Organic Carbon	0.198	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: 2012955
Field Sample ID: G3SD0092

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	88.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	67.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.3	P	30 - 160
EPA 8321B	Diuron-d6	53.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	51.6	P	30 - 160
EPA 8321B	Primidone-d5	82.0	P	30 - 160
EPA 8321B	Sucralose-d6	80.1	P	40 - 160

Lab Sample ID: 2012956
Field Sample ID: G3SD0090

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	90.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	62.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	62.0	P	30 - 160
EPA 8321B	Diuron-d6	50.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	52.9	P	30 - 160
EPA 8321B	Primidone-d5	77.9	P	30 - 160
EPA 8321B	Sucralose-d6	85.7	P	40 - 160

Lab Sample ID: 2012957
Field Sample ID: G3SD0089

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	78.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	71.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.6	P	30 - 160
EPA 8321B	Diuron-d6	46.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	49.2	P	30 - 160
EPA 8321B	Primidone-d5	76.4	P	30 - 160
EPA 8321B	Sucralose-d6	81.1	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A85684

Included Lab Sample IDs: 2012921, 2012922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.5	98.8	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85690

Included Lab Sample IDs: 2012921, 2012922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85702

Included Lab Sample IDs: 2012923, 2012924

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85705

Included Lab Sample IDs: 2012925, 2012926

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.3	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85712

Included Lab Sample IDs: 2012921, 2012922

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	99.1	P/P	90 - 110
Sulfate	106	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85740

Included Lab Sample IDs: 2012923, 2012924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	100	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85742

Included Lab Sample IDs: 2012923, 2012924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	106	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85755

Included Lab Sample IDs: 2012923, 2012924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	105	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85775

Included Lab Sample IDs: 2012923, 2012924

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	98.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A85787

Included Lab Sample IDs: 2012955, 2012956, 2012957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	99.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A85823

Included Lab Sample IDs: 2012955, 2012956, 2012957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	123	P/P	50 - 150
Bentazon	78.5	103	P/P	50 - 160
Ibuprofen	105	127	P/P	50 - 160
MCP	80.0	101	P/P	50 - 150
Naproxen	86.7	76.9	P/P	50 - 160
Triclopyr	70.5	113	P/P	50 - 160

Reference Method: SM 2320 B-97

Run ID: A85838

Included Lab Sample IDs: 2012921, 2012922

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

Reference Method: SM 4500 F-C-97

Run ID: A85838

Included Lab Sample IDs: 2012921, 2012922

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

Reference Method: EPA 8321B

Run ID: A85929

Included Lab Sample IDs: 2012955, 2012956, 2012957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	105	90.6	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A85929

Included Lab Sample IDs: 2012955, 2012956, 2012957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Carbamazepine	91.5	95.5	P/P	60 - 160
Diuron	97.5	97.7	P/P	60 - 150
Fenuron	102	102	P/P	60 - 150
Fluridone	105	90.1	P/P	60 - 160
Hydrocodone	107	96.8	P/P	60 - 150
Imazapyr	130	70.9	P/P	50 - 150
Imidacloprid	78.3	87.2	P/P	60 - 150
Linuron	105	75.3	P/P	60 - 150
Primidone	102	114	P/P	60 - 150
Pyraclostrobin	96.2	83.1	P/P	60 - 150

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.01	
EPA 300.0 Rev. 2.1	Chloride	104	94.1	97.8	2.05	
	Sulfate	103	94.8	99.6	2.62	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	101	101		0.228
	Ammonia-N	103	102	102		0.358
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104				0.837
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.0	98.4		0.378
EPA 365.1 Rev. 2.0	Total-P	95.2	96.2	93.1		2.91
	Total-P	94.2	91.4	94.5		3.34
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	94.1	94.9		0.609
EPA 8321B	2,4-D	85.0	132	105		21.3
	Acetaminophen	99.0	85.3	91.7		7.28
	Bentazon	54.5	70.1	63.0		9.64
	Carbamazepine	102	85.0	87.7		3.15
	Diuron	85.9	66.4	68.3		2.82
	Fenuron	111	95.4	101		5.33
	Fluridone	107	81.7	106		18.6
	Hydrocodone	95.9	83.1	98.0		16.5
	Ibuprofen	98.3	65.7	72.5		9.83
	Imazapyr	91.0	98.6	97.8		0.485
	Imidacloprid	108	135	134		0.420
	Linuron	83.6	62.7	70.7		12.1
	MCPP	97.7	136	131		3.74
	Naproxen	94.4	66.6	55.4		18.4
	Primidone	117	126	111		13.2
	Pyraclostrobin	77.9	75.6	79.2		4.70
	Sucralose	107	114	103		9.12
	Triclopyr	104	138	140		1.47
SM 2120 B	Color (true)	99.4			0.509	
SM 2320 B-97	Total Alkalinity	103			0.485	
SM 2540 C-97	TDS				6.33	
SM 4500 F-C-97	Fluoride	97.8	97.8	97.8		0.0
SM 5310 B-00	Organic Carbon	96.3	93.6	93.8		0.198

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2012921, 2012922
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2012921, 2012922
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2012921, 2012922
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2012923, 2012924
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2012923, 2012924
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2012923, 2012924
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2012923, 2012924
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2012925, 2012926
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2012955, 2012956, 2012957
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2012955, 2012956, 2012957

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2120 B / E31780	True Color measured at 450 nm	2012921, 2012922
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2012921, 2012922
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2012921, 2012922
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2012921, 2012922
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2012921, 2012922
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2012923, 2012924

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/03/2018			08/03/2018 18:30	William L. Brown IV	2012921, 2012922
EPA 300.0 Rev. 2.1	08/03/2018			08/07/2018 16:13	Lipi Saha	2012921
	08/03/2018			08/07/2018 16:25	Lipi Saha	2012922
EPA 350.1 Rev. 2.0	08/03/2018			08/08/2018 15:07	Julia Storbeck	2012923
	08/03/2018			08/08/2018 15:22	Julia Storbeck	2012924
EPA 351.2 Rev. 2.0	08/03/2018	08/07/2018 15:30	Adrian Shelby	08/08/2018 10:10	Joseph Suarez	2012923
	08/03/2018	08/07/2018 15:30	Adrian Shelby	08/08/2018 10:11	Joseph Suarez	2012924
EPA 353.2 Rev. 2.0	08/03/2018			08/06/2018 14:40	Lauren Bottorf	2012923
	08/03/2018			08/06/2018 14:41	Lauren Bottorf	2012924
EPA 365.1 Rev. 2.0	08/03/2018	08/07/2018 12:35	Sima Feizi	08/08/2018 08:31	Beverly Y. Sanders	2012923
	08/03/2018	08/07/2018 12:35	Sima Feizi	08/08/2018 08:40	Beverly Y. Sanders	2012924
EPA 365.1 Rev. 2.0 dissolved	08/03/2018			08/03/2018 17:58	Julia Storbeck	2012925
	08/03/2018			08/03/2018 18:13	Julia Storbeck	2012926
EPA 8321B	08/03/2018	08/03/2018 12:15	Mohammad Ghaffari	08/09/2018 14:28	Mohammad Ghaffari	2012955
	08/03/2018	08/03/2018 12:15	Mohammad Ghaffari	08/09/2018 14:43	Mohammad Ghaffari	2012956
	08/03/2018	08/03/2018 12:15	Mohammad Ghaffari	08/09/2018 14:58	Mohammad Ghaffari	2012957
	08/03/2018	08/06/2018 10:00	Hoor Shaik	08/11/2018 20:42	Juyoung Kim	2012955
	08/03/2018	08/06/2018 10:00	Hoor Shaik	08/11/2018 21:17	Juyoung Kim	2012956
	08/03/2018	08/06/2018 10:00	Hoor Shaik	08/11/2018 21:51	Juyoung Kim	2012957
	08/03/2018	08/06/2018 10:00	Hoor Shaik	08/16/2018 02:54	Juyoung Kim	2012955
	08/03/2018	08/06/2018 10:00	Hoor Shaik	08/16/2018 03:29	Juyoung Kim	2012956
	08/03/2018	08/06/2018 10:00	Hoor Shaik	08/16/2018 04:03	Juyoung Kim	2012957
SM 2120 B	08/03/2018			08/03/2018 17:57	Tanya Welborn	2012921, 2012922
SM 2320 B-97	08/03/2018			08/10/2018 11:10	Dale L. Simmons	2012921
	08/03/2018			08/10/2018 14:44	Dale L. Simmons	2012922
SM 2540 C-97	08/03/2018			08/08/2018 15:01	Yijie Li	2012921, 2012922
SM 2540 D-97	08/03/2018			08/08/2018 15:01	Yijie Li	2012921, 2012922
SM 4500 F-C-97	08/03/2018			08/10/2018 11:03	Dale L. Simmons	2012921
	08/03/2018			08/10/2018 14:44	Dale L. Simmons	2012922
SM 5310 B-00	08/03/2018			08/08/2018 03:58	Julia Storbeck	2012923
	08/03/2018			08/08/2018 04:12	Julia Storbeck	2012924