

Chemical Analysis Report

SE-DIST-2018-07-26-01

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

Event Description: **SMP- Martin**
Request ID: **RQ-2018-05-21-24**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 16-AUG-2018 10:01



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: SOUTH FORK SLR @ HALPATIOKEE TRAIL

Collection Date/Time: 07/25/2018 13:00

Field ID: G2SE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2010989	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P349233	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P349411	
		Sulfate	13		mg SO4/L	P349413	
	SM 2120 B	Color (true)	110	A	PCU	P349231	
	SM 2320 B-97	Total Alkalinity	163		mg CaCO3/L	P349353	
	SM 2540 C-97	TDS	291		mg/L	P349478	
	SM 2540 D-97	TSS	3	I	mg/L	P349434	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P349357	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P349524	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P349390	
2010990	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P349402	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P349388	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P349363	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.097		mg P/L	P349239	
	dissolved						

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: DANFORTH CREEK @ MARTIN HWY

Collection Date/Time: 07/25/2018 13:30

Field ID: G2SE0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011007	EPA 8321B	2,4-D	0.021		ug/L	P349225	
		Sucralose**	0.18		ug/L	P349176	
		Bentazon	0.014		ug/L	P349225	
		MCP	0.0023	I	ug/L	P349225	
		Triclopyr**	0.0040	U	ug/L	P349225	
		Imidacloprid	0.023		ug/L	P349225	
		Diuron	0.0020	U	ug/L	P349225	
		Pyraclostrobin**	0.0020	U	ug/L	P349225	
		Primidone**	0.0040	U	ug/L	P349225	
		Linuron	0.0040	U	ug/L	P349225	
		Acetaminophen**	0.0080	U	ug/L	P349225	
		Fenuron	0.016	U	ug/L	P349225	
		Imazapyr**	0.16		ug/L	P349225	
		Carbamazepine**	8.0E-04	U	ug/L	P349225	
		Fluridone**	0.0042		ug/L	P349225	
		Hydrocodone**	8.0E-04	U	ug/L	P349225	

Ref. Method and Comment:

EPA 8321B: Insufficient sample to perform matrix spikes.

Sample Location: BESSEY CREEK @ MURPHY

Collection Date/Time: 07/25/2018 13:50

Field ID: G2SE0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2010995	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P349233	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P349353	
	SM 2540 D-97	TSS	4	I	mg/L	P349434	
	SM 4500 F-C-97	Fluoride	0.089	I	mg F/L	P349357	
2010996	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P349525	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P349391	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P349402	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P349483	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P349363	
2010997	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.073		mg P/L	P349239	
2011006	EPA 8321B	2,4-D	0.036		ug/L	P349225	
		Sucralose**	0.87		ug/L	P349176	
		Bentazon	0.059		ug/L	P349225	
		MCP	0.0026	I	ug/L	P349225	
		Triclopyr**	0.0040	U	ug/L	P349225	
		Imidacloprid	0.072		ug/L	P349225	
		Diuron	0.0020	I	ug/L	P349225	
		Pyraclostrobin**	0.0020	U	ug/L	P349225	
		Primidone**	0.0053	I	ug/L	P349225	
		Linuron	0.0040	U	ug/L	P349225	
		Acetaminophen**	0.0080	U	ug/L	P349225	
		Fenuron	0.016	U	ug/L	P349225	
		Imazapyr**	0.11		ug/L	P349225	
		Carbamazepine**	0.0016	I	ug/L	P349225	
		Fluridone**	0.0033		ug/L	P349225	
		Hydrocodone**	8.0E-04	U	ug/L	P349225	

Ref. Method and Comment:

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

EPA 8321B: Insufficient sample to perform matrix spikes.

Sample Location: C-23 UPSTREAM OF S97

Collection Date/Time: 07/25/2018 14:10

Field ID: G2SE0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2010992	EPA 180.1 Rev. 2.0	Turbidity	4.9	A	NTU	P349234	
	EPA 300.0 Rev. 2.1	Chloride	93		mg Cl/L	P349411	
		Sulfate	30		mg SO4/L	P349413	
	SM 2120 B	Color (true)	220		PCU	P349231	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P349353	
	SM 2540 C-97	TDS	392	A	mg/L	P349478	
	SM 2540 D-97	TSS	9	IA	mg/L	P349434	
	SM 4500 F-C-97	Fluoride	0.22		mg F/L	P349357	
2010993	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P349525	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P349390	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P349402	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P349483	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P349363	
2010994	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P349239	

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349233

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349234

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349411

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349413

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349524

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349525

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349390

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349391

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349402

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349388

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349483

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349239

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

Reference Method: EPA 8321B
Batch ID: P349176

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P349225

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	0.016	U	ug/L
Fluridone	4.0E-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: SM 2120 B
Batch ID: P349231

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P349353

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P349478

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349434

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P349357

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P349363

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: P349411

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349413

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349524

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349525

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349390

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349391

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349402

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349388

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349483

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349239

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

Reference Method: EPA 8321B
Batch ID: P349176

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	106		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P349225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	110	106	P/P	40 - 150
Acetaminophen	97.3	89.8	P/P	30 - 150
Bentazon	119	112	P/P	30 - 150
Carbamazepine	88.7	80.4	P/P	40 - 150
Diuron	102	97.4	P/P	40 - 150
Fenuron	107	101	P/P	40 - 150
Fluridone	92.8	80.6	P/P	40 - 150
Hydrocodone	93.3	82.1	P/P	40 - 150
Imazapyr	90.3	102	P/P	40 - 150
Imidacloprid	106	99.8	P/P	40 - 160
Linuron	97.3	90.3	P/P	40 - 150
MCPP	113	123	P/P	40 - 150
Primidone	96.4	95.4	P/P	40 - 150
Pyraclostrobin	83.5	72.9	P/P	40 - 150
Triclopyr	108	102	P/P	40 - 150

Reference Method: SM 2120 B
Batch ID: P349231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P349353

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

Reference Method: SM 4500 F-C-97
Batch ID: P349357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349363

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010616	Chloride	109		P	90 - 110
2010787	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010616	Sulfate	108		P	90 - 110
2010787	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010937	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011026	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010996	Kjeldahl Nitrogen	90.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010990	NO2NO3-N	100	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010937	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011060	Total-P	95.1	93.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010938	O-Phosphate-P	96.3	96.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P349176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010469	Sucralose	60.6	73.9	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P349357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010787	Fluoride	101	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2010869	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011020	Turbidity	0.556	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010992	Turbidity	3.27	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010616	Chloride	0.338	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010616	Sulfate	0.344	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010937	Ammonia-N	1.92	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011026	Ammonia-N	1.63	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010886	Kjeldahl Nitrogen	6.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010996	Kjeldahl Nitrogen	6.79	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010990	NO2NO3-N	1.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010937	Total-P	0.454	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011060	Total-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010938	O-Phosphate-P	0.0848	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P349176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010469	Sucralose	19.7	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P349225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	2,4-D	3.55	LCS	P	0 - 30
LFB	Acetaminophen	8.05	LCS	P	0 - 30
LFB	Bentazon	6.78	LCS	P	0 - 30
LFB	Carbamazepine	9.83	LCS	P	0 - 30
LFB	Diuron	4.60	LCS	P	0 - 30
LFB	Fenuron	5.49	LCS	P	0 - 30
LFB	Fluridone	14.1	LCS	P	0 - 30
LFB	Hydrocodone	12.8	LCS	P	0 - 30
LFB	Imazapyr	12.3	LCS	P	0 - 30
LFB	Imidacloprid	5.58	LCS	P	0 - 30
LFB	Linuron	7.51	LCS	P	0 - 30
LFB	MCPP	8.11	LCS	P	0 - 30
LFB	Primidone	1.09	LCS	P	0 - 30
LFB	Pyraclostrobin	13.5	LCS	P	0 - 30
LFB	Triclopyr	5.89	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P349231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010989	Color (true)	0.591	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P349353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010787	Total Alkalinity	0.845	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P349478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010992	TDS	3.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P349357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010787	Fluoride	0.511	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P349363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2010869	Organic Carbon	0.598	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: 2011006
Field Sample ID: G2SE0017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	72.7	P	30 - 160
EPA 8321B	Diuron-d6	61.0	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	137	P	40 - 160

Lab Sample ID: 2011007
Field Sample ID: G2SE0018

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	114	P	30 - 160
EPA 8321B	Acetaminophen-d4	123	P	30 - 160
EPA 8321B	Carbamazepine-d10	60.2	P	30 - 160
EPA 8321B	Diuron-d6	50.6	P	30 - 160
EPA 8321B	Primidone-d5	89.9	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A85507

Included Lab Sample IDs: 2010989, 2010992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85508

Included Lab Sample IDs: 2010989, 2010992, 2010995

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85510

Included Lab Sample IDs: 2010991, 2010994, 2010997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.1	97.4	P/P	90 - 110
O-Phosphate-P	97.4	96.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85546

Included Lab Sample IDs: 2010989, 2010992, 2010995

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A85546

Included Lab Sample IDs: 2010989, 2010992, 2010995

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

Reference Method: SM 5310 B-00

Run ID: A85549

Included Lab Sample IDs: 2010990, 2010993, 2010996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85559

Included Lab Sample IDs: 2010990, 2010993, 2010996

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85560

Included Lab Sample IDs: 2010989, 2010992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	103	P/P	90 - 110
Sulfate	108	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85574

Included Lab Sample IDs: 2010990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85594

Included Lab Sample IDs: 2010990, 2010993, 2010996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.9	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A85602

Included Lab Sample IDs: 2011006, 2011007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	122	110	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85621

Included Lab Sample IDs: 2010990, 2010993, 2010996

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85630

Included Lab Sample IDs: 2010993, 2010996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	95.2	94.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A85694

Included Lab Sample IDs: 2011006, 2011007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	123	120	P/P	50 - 150
Bentazon	152	149	P/P	50 - 160
MCP	121	124	P/P	50 - 150
Triclopyr	112	102	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A85767

Included Lab Sample IDs: 2011006, 2011007

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	137	120	P/P	60 - 160
Carbamazepine	92.7	83.0	P/P	60 - 160
Diuron	98.6	97.0	P/P	60 - 150
Fenuron	111	111	P/P	60 - 150
Fluridone	85.2	93.5	P/P	60 - 160
Hydrocodone	106	110	P/P	60 - 150
Imazapyr	112	109	P/P	50 - 150
Imidacloprid	96.9	101	P/P	60 - 150
Linuron	62.7	76.4	P/P	60 - 150
Primidone	110	112	P/P	60 - 150
Pyraclostrobin	107	108	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					0.556	
	Turbidity					3.27	
EPA 300.0 Rev. 2.1	Chloride	105		109	103	0.338	
	Sulfate	105		108	101	0.344	
EPA 350.1 Rev. 2.0	Ammonia-N	103		100	102		1.92
	Ammonia-N	104		102	100		1.63
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.2					6.34
	Kjeldahl Nitrogen	102		90.3	101		6.79
EPA 353.2 Rev. 2.0	NO2NO3-N	101		100	103		1.62
EPA 365.1 Rev. 2.0	Total-P	98.4		101	100		0.454
	Total-P	98.1		95.1	93.0		2.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5		96.3	96.2		0.0848
EPA 8321B	2,4-D	110	106			3.55	
	Acetaminophen	89.8	97.3			8.05	
	Bentazon	119	112			6.78	
	Carbamazepine	88.7	80.4			9.83	
	Diuron	102	97.4			4.60	
	Fenuron	101	107			5.49	
	Fluridone	92.8	80.6			14.1	
	Hydrocodone	82.1	93.3			12.8	
	Imazapyr	90.3	102			12.3	
	Imidacloprid	99.8	106			5.58	
	Linuron	97.3	90.3			7.51	
	MCP	113	123			8.11	
	Primidone	95.4	96.4			1.09	
	Pyraclostrobin	83.5	72.9			13.5	
	Sucralose	106		60.6	73.9		19.7
	Triclopyr	108	102			5.89	
	Color (true)	98.4				0.591	
	Total Alkalinity	103				0.845	
	TDS					3.06	
	Fluoride	97.4		101	100		0.511
	Organic Carbon	97.8		103			0.598

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2010989, 2010992, 2010995
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2010989, 2010992
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2010989, 2010992
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2010990, 2010993, 2010996
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2010990, 2010993, 2010996
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2010990, 2010993, 2010996
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2010990, 2010993, 2010996
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2010991, 2010994, 2010997
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2011006, 2011007
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2011006, 2011007

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2120 B / E31780	True Color measured at 450 nm	2010989, 2010992
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2010989, 2010992, 2010995
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2010989, 2010992
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2010989, 2010992, 2010995
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2010989, 2010992, 2010995
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2010990, 2010993, 2010996

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	07/26/2018			07/26/2018 16:36	Blanca Fach	2010989, 2010992, 2010995
EPA 300.0 Rev. 2.1	07/26/2018			07/30/2018 23:57	Lipi Saha	2010989
	07/26/2018			07/31/2018 00:09	Lipi Saha	2010992
EPA 350.1 Rev. 2.0	07/26/2018			08/01/2018 13:05	Ping Hua	2010990
	07/26/2018			08/01/2018 13:21	Ping Hua	2010996
	07/26/2018			08/01/2018 13:24	Ping Hua	2010993
EPA 351.2 Rev. 2.0	07/26/2018	07/30/2018 15:30	Adrian Shelby	07/31/2018 16:33	Joseph Suarez	2010990
	07/26/2018	07/30/2018 15:30	Adrian Shelby	07/31/2018 16:34	Joseph Suarez	2010993
	07/26/2018	07/30/2018 15:30	Adrian Shelby	07/31/2018 16:39	Joseph Suarez	2010996
EPA 353.2 Rev. 2.0	07/26/2018			07/30/2018 12:11	Lauren Bottorf	2010990
	07/26/2018			07/30/2018 12:22	Lauren Bottorf	2010993
	07/26/2018			07/30/2018 12:23	Lauren Bottorf	2010996
EPA 365.1 Rev. 2.0	07/26/2018	07/30/2018 11:20	Sima Feizi	07/31/2018 10:27	Beverly Y. Sanders	2010990
	07/26/2018	08/01/2018 12:35	Sima Feizi	08/02/2018 08:38	Beverly Y. Sanders	2010993
	07/26/2018	08/01/2018 12:35	Sima Feizi	08/02/2018 08:40	Beverly Y. Sanders	2010996
EPA 365.1 Rev. 2.0 dissolved	07/26/2018			07/26/2018 17:07	Julia Storbeck	2010994
	07/26/2018			07/26/2018 17:23	Julia Storbeck	2010991
	07/26/2018			07/26/2018 17:24	Julia Storbeck	2010997
EPA 8321B	07/26/2018	07/27/2018 14:50	Hoor Shaik	08/01/2018 04:38	Mohammad Ghaffari	2011006
	07/26/2018	07/27/2018 14:50	Hoor Shaik	08/01/2018 04:52	Mohammad Ghaffari	2011007
	07/26/2018	07/30/2018 10:00	Hoor Shaik	08/05/2018 23:45	Juyoung Kim	2011006
	07/26/2018	07/30/2018 10:00	Hoor Shaik	08/06/2018 00:20	Juyoung Kim	2011007
	07/26/2018	07/30/2018 10:00	Hoor Shaik	08/09/2018 07:11	Juyoung Kim	2011006
	07/26/2018	07/30/2018 10:00	Hoor Shaik	08/09/2018 07:46	Juyoung Kim	2011007
SM 2120 B	07/26/2018			07/26/2018 15:56	Tanya Welborn	2010989
	07/26/2018			07/26/2018 16:22	Tanya Welborn	2010992
SM 2320 B-97	07/26/2018			07/27/2018 05:40	Dale L. Simmons	2010989
	07/26/2018			07/27/2018 05:51	Dale L. Simmons	2010992
	07/26/2018			07/27/2018 06:02	Dale L. Simmons	2010995
SM 2540 C-97	07/26/2018			07/27/2018 14:45	William L. Brown IV	2010989, 2010992
SM 2540 D-97	07/26/2018			07/27/2018 14:57	William L. Brown IV	2010989, 2010992, 2010995
SM 4500 F-C-97	07/26/2018			07/27/2018 05:40	Dale L. Simmons	2010989
	07/26/2018			07/27/2018 05:51	Dale L. Simmons	2010992
	07/26/2018			07/27/2018 06:02	Dale L. Simmons	2010995
SM 5310 B-00	07/26/2018			07/28/2018 04:53	Megan Treadwell	2010990
	07/26/2018			07/28/2018 05:07	Megan Treadwell	2010993
	07/26/2018			07/28/2018 05:21	Megan Treadwell	2010996