

Chemical Analysis Report

SE-DIST-2018-07-19-01

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

Event Description: **SMP- St. Johns**
Request ID: **RQ-2018-05-14-60**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

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

Date Certified: 09-AUG-2018 10:46

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first 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: 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: FORT DRUM CREEK @ 441

Collection Date/Time: 07/18/2018 11:50

Field ID: G3SE0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009089	EPA 8321B	2,4-D	0.0020	U	ug/L	P348626	
		Bentazon	8.0E-04	U	ug/L	P348626	
		MCP	0.0020	U	ug/L	P348626	MS
		Triclopyr**	0.0040	U	ug/L	P348626	MS
		Imidacloprid	0.0020	U	ug/L	P348626	
		Diuron	0.0020	U	ug/L	P348626	
		Pyraclostrobin**	0.0020	U	ug/L	P348626	
		Primidone**	0.0040	U	ug/L	P348626	
		Linuron	0.0040	U	ug/L	P348626	
		Acetaminophen**	0.0080	U	ug/L	P348626	
		Fenuron	0.016	U	ug/L	P348626	
		Imazapyr**	0.0040	U	ug/L	P348626	
		Carbamazepine**	4.0E-04	U	ug/L	P348626	
		Fluridone**	4.0E-04	U	ug/L	P348626	
		Hydrocodone**	8.0E-04	U	ug/L	P348626	
		Sucralose**	0.010	U	ug/L	P348754	

Sample Location: SWEETWATER BRANCH @ 441

Collection Date/Time: 07/18/2018 12:05

Field ID: G3SE0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009081	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P348827	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P349150	
		Sulfate	1.1		mg SO4/L	P349155	
	SM 2120 B	Color (true)	290		PCU	P348781	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P349027	
	SM 2540 C-97	TDS	93		mg/L	P349195	
	SM 2540 D-97	TSS	10		mg/L	P349172	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P349031	
2009082	EPA 350.1 Rev. 2.0	Ammonia-N	0.091		mg N/L	P349157	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P348953	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P348973	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P349420	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P349005	
2009083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P348787	

Ref. Method and Comment:

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

Sample Location: PADGETT BRANCH @ 441

Collection Date/Time: 07/18/2018 12:15

Field ID: G3SE0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009078	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P348827	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P349150	
		Sulfate	0.30	I	mg SO4/L	P349155	
	SM 2120 B	Color (true)	460		PCU	P348781	
	SM 2320 B-97	Total Alkalinity	6.6		mg CaCO3/L	P349027	
	SM 2540 C-97	TDS	86		mg/L	P349195	
	SM 2540 D-97	TSS	4	I	mg/L	P349172	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P349031	
2009079	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P349213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P348953	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P349010	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P348987	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P349006	
2009080	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P348787	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348827

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349150

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349155

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349157

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348953

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348973

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349010

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

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
Batch ID: P349420

Component	Result	Code	Units
Total-P	0.005	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348787

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

Reference Method: EPA 8321B
Batch ID: P348626

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: EPA 8321B
Batch ID: P348754

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P348781

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P349027

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

Reference Method: SM 2540 C-97
Batch ID: P349195

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P349172

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P349005

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

Reference Method: SM 5310 B-00
Batch ID: P349006

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: P349150

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349155

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348953

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: P348973

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349010

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349420

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P348626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	117		P	40 - 150
Acetaminophen	86.6		P	30 - 150
Bentazon	98.1		P	30 - 150
Carbamazepine	80.4		P	40 - 150
Diuron	76.3		P	40 - 150
Fenuron	97.7		P	40 - 150
Fluridone	80.9		P	40 - 150
Hydrocodone	92.2		P	40 - 150
Imazapyr	90.3		P	40 - 150
Imidacloprid	91.8		P	40 - 160
Linuron	84.3		P	40 - 150
MCPP	139		P	40 - 150
Primidone	94.8		P	40 - 150
Pyraclostrobin	85.1		P	40 - 150
Triclopyr	136		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P348754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	77.3		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P348781

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P349027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349005

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P349006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2008993	Chloride	105		P	90 - 110
2009081	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2008993	Sulfate	103		P	90 - 110
2009081	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009041	Ammonia-N	96.7	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009578	Ammonia-N	97.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009229	Kjeldahl Nitrogen	98.0	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009073	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009754	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007870	Total-P	92.6	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349420

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009065	Total-P	96.4	98.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009071	O-Phosphate-P	95.7	95.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P348626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009013	2,4-D	139	139	P/P	40 - 150
2009013	Acetaminophen	106	109	P/P	30 - 150
2009013	Bentazon	52.6	54.5	P/P	30 - 150
2009013	Carbamazepine	75.6	81.3	P/P	40 - 150
2009013	Diuron	73.1	78.4	P/P	40 - 150
2009013	Fenuron	77.7	87.3	P/P	40 - 150
2009013	Fluridone	83.2	89.3	P/P	40 - 150
2009013	Hydrocodone	87.3	97.3	P/P	40 - 150
2009013	Imazapyr	91.8	106	P/P	40 - 150
2009013	Imidacloprid	142	153	P/P	40 - 160
2009013	Linuron	89.6	94.1	P/P	40 - 150
2009013	MCP	162	165	F/F	40 - 150
2009013	Primidone	109	121	P/P	40 - 150
2009013	Pyraclostrobin	86.7	101	P/P	40 - 150
2009013	Triclopyr	162	162	F/F	40 - 150

Reference Method: EPA 8321B
Batch ID: P348754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2008562	Sucralose	75.6	96.9	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009225	Fluoride	98.4	96.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009067	Organic Carbon	92.7	94.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P349006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2008436	Organic Carbon	94.9	93.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009062	Turbidity	2.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2008993	Chloride	2.26	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2008993	Sulfate	3.12	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009041	Ammonia-N	0.263	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009578	Ammonia-N	3.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009229	Kjeldahl Nitrogen	0.764	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009073	NO2NO3-N	0.257	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009754	NO2NO3-N	0.489	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007870	Total-P	2.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009065	Total-P	1.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009071	O-Phosphate-P	0.222	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P348626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009013	2,4-D	0.511	Spike	P	0 - 30
2009013	Acetaminophen	2.89	Spike	P	0 - 30
2009013	Bentazon	3.14	Spike	P	0 - 30
2009013	Carbamazepine	7.06	Spike	P	0 - 30
2009013	Diuron	7.10	Spike	P	0 - 30
2009013	Fenuron	11.5	Spike	P	0 - 30
2009013	Fluridone	7.03	Spike	P	0 - 30
2009013	Hydrocodone	10.9	Spike	P	0 - 30
2009013	Imazapyr	12.9	Spike	P	0 - 30
2009013	Imidacloprid	4.97	Spike	P	0 - 30
2009013	Linuron	4.99	Spike	P	0 - 30
2009013	MCP	1.75	Spike	P	0 - 30
2009013	Primidone	9.41	Spike	P	0 - 30
2009013	Pyraclostrobin	15.7	Spike	P	0 - 30
2009013	Triclopyr	0.178	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P348754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2008562	Sucralose	13.5	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P348781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009061	Color (true)	4.33	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P349027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009225	Total Alkalinity	0.239	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P349195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009161	TDS	7.29	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P349031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009225	Fluoride	1.92	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P349005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009067	Organic Carbon	1.04	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P349006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2008436	Organic Carbon	0.821	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: 2009089
Field Sample ID: G3SE0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	141	P	30 - 160
EPA 8321B	Acetaminophen-d4	92.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	57.6	P	30 - 160
EPA 8321B	Diuron-d6	60.9	P	30 - 160
EPA 8321B	Primidone-d5	77.4	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A85347

Included Lab Sample IDs: 2009078, 2009081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	105	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85348

Included Lab Sample IDs: 2009080, 2009083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	97.2	P/P	90 - 110
O-Phosphate-P	99.7	98.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85363

Included Lab Sample IDs: 2009078, 2009081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	98.5	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A85393

Included Lab Sample IDs: 2009089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	93.6	91.4	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85414

Included Lab Sample IDs: 2009082

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85417

Included Lab Sample IDs: 2009078, 2009081

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

Reference Method: SM 5310 B-00

Run ID: A85418

Included Lab Sample IDs: 2009079, 2009082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	98.0	P/P	90 - 110
Organic Carbon	97.4	97.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85422

Included Lab Sample IDs: 2009079

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85424

Included Lab Sample IDs: 2009079, 2009082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	106	P/P	90 - 110
Kjeldahl Nitrogen	106	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85425

Included Lab Sample IDs: 2009079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85430

Included Lab Sample IDs: 2009078, 2009081

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

Reference Method: SM 4500 F-C-97

Run ID: A85430

Included Lab Sample IDs: 2009078, 2009081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85474

Included Lab Sample IDs: 2009082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85497

Included Lab Sample IDs: 2009079

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85600

Included Lab Sample IDs: 2009082

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A85613
Included Lab Sample IDs: 2009089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	117	127	P/P	50 - 150
Bentazon	118	120	P/P	50 - 150
MCPP	144	136	P/P	50 - 150
Triclopyr	150	138	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A85626
Included Lab Sample IDs: 2009089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	98.2	95.0	P/P	60 - 150
Carbamazepine	115	122	P/P	60 - 150
Diuron	107	120	P/P	60 - 150
Fenuron	98.7	95.5	P/P	60 - 150
Fluridone	105	106	P/P	60 - 160
Hydrocodone	94.3	90.3	P/P	60 - 150
Imazapyr	94.2	91.5	P/P	50 - 150
Imidacloprid	90.1	90.9	P/P	60 - 150
Linuron	99.7	115	P/P	60 - 150
Primidone	105	100	P/P	60 - 150
Pyraclostrobin	109	115	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				2.04	
EPA 300.0 Rev. 2.1	Chloride	108	105	104	2.26	
	Sulfate	106	103	103	3.12	
EPA 350.1 Rev. 2.0	Ammonia-N	99.8	96.7	97.1		0.263
	Ammonia-N	105	97.6	101		3.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	98.0	99.3		0.764
EPA 353.2 Rev. 2.0	NO2NO3-N	103	102	102		0.257
	NO2NO3-N	99.0	102	102		0.489
EPA 365.1 Rev. 2.0	Total-P	96.0	92.6	95.2		2.66
	Total-P	99.1	96.4	98.4		1.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	95.7	95.3		0.222
EPA 8321B	2,4-D	117	139	139		0.511
	Acetaminophen	86.6	106	109		2.89
	Bentazon	98.1	52.6	54.5		3.14
	Carbamazepine	80.4	75.6	81.3		7.06
	Diuron	76.3	73.1	78.4		7.10
	Fenuron	97.7	77.7	87.3		11.5
	Fluridone	80.9	83.2	89.3		7.03
	Hydrocodone	92.2	87.3	97.3		10.9
	Imazapyr	90.3	91.8	106		12.9
	Imidacloprid	91.8	142	153		4.97
	Linuron	84.3	89.6	94.1		4.99
	MCP	139	162	165		1.75
	Primidone	94.8	109	121		9.41
	Pyraclostrobin	85.1	86.7	101		15.7
	Sucralose	77.3	75.6	96.9		13.5
	Triclopyr	136	162	162		0.178
SM 2120 B	Color (true)	100			4.33	
SM 2320 B-97	Total Alkalinity	106			0.239	
SM 2540 C-97	TDS				7.29	
SM 4500 F-C-97	Fluoride	96.1	98.4	96.3		1.92
SM 5310 B-00	Organic Carbon	94.8	92.7	94.1		1.04
	Organic Carbon	95.4	94.9	93.9		0.821

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2009078, 2009081
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2009078, 2009081
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2009078, 2009081
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2009079, 2009082
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2009079, 2009082
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2009079, 2009082
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2009079, 2009082
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2009080, 2009083
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2009089
SM 2120 B / E31780	True Color measured at 450 nm	2009078, 2009081

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2009078, 2009081
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2009078, 2009081
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2009078, 2009081
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2009078, 2009081
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2009079, 2009082

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	07/19/2018			07/19/2018 15:51	Blanca Fach	2009078, 2009081
EPA 300.0 Rev. 2.1	07/19/2018			07/25/2018 11:31	Lipi Saha	2009081
	07/19/2018			07/25/2018 13:56	Lipi Saha	2009078
EPA 350.1 Rev. 2.0	07/19/2018			07/25/2018 12:53	Ping Hua	2009082
	07/19/2018			07/26/2018 10:52	Ping Hua	2009079
EPA 351.2 Rev. 2.0	07/19/2018	07/23/2018 11:30	Adrian Shelby	07/24/2018 10:56	Joseph Suarez	2009079
	07/19/2018	07/23/2018 11:30	Adrian Shelby	07/24/2018 11:00	Joseph Suarez	2009082
EPA 353.2 Rev. 2.0	07/19/2018			07/23/2018 13:03	Lauren Bottorf	2009082
	07/19/2018			07/24/2018 10:41	Lauren Bottorf	2009079
EPA 365.1 Rev. 2.0	07/19/2018	07/23/2018 12:25	Sima Feizi	07/24/2018 12:00	Beverly Y. Sanders	2009079
	07/19/2018	07/31/2018 10:30	Sima Feizi	08/01/2018 09:10	Beverly Y. Sanders	2009082
EPA 365.1 Rev. 2.0 dissolved	07/19/2018			07/19/2018 15:37	Julia Storbeck	2009080
	07/19/2018			07/19/2018 16:12	Julia Storbeck	2009083
EPA 8321B	07/19/2018	07/20/2018 10:00	Hoor Shaik	07/25/2018 04:23	Juyoung Kim	2009089
	07/19/2018	07/20/2018 10:00	Hoor Shaik	07/28/2018 10:30	Juyoung Kim	2009089
	07/19/2018	07/20/2018 16:30	Mohammad Ghaffari	07/21/2018 13:01	Mohammad Ghaffari	2009089
SM 2120 B	07/19/2018			07/19/2018 15:41	Tanya Welborn	2009078
	07/19/2018			07/19/2018 15:42	Tanya Welborn	2009081
SM 2320 B-97	07/19/2018			07/24/2018 00:33	Dale L. Simmons	2009078
	07/19/2018			07/24/2018 00:44	Dale L. Simmons	2009081
SM 2540 C-97	07/19/2018			07/20/2018 16:46	William L. Brown IV	2009078, 2009081
SM 2540 D-97	07/19/2018			07/20/2018 17:00	William L. Brown IV	2009078, 2009081
SM 4500 F-C-97	07/19/2018			07/24/2018 00:33	Dale L. Simmons	2009078
	07/19/2018			07/24/2018 00:44	Dale L. Simmons	2009081
SM 5310 B-00	07/19/2018			07/23/2018 22:43	Megan Treadwell	2009082
	07/19/2018			07/24/2018 04:18	Megan Treadwell	2009079