

Chemical Analysis Report

NW-DIST-2018-06-08-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

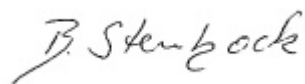
Event Description: **Shoal River**
Request ID: **RQ-2018-06-04-42**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Date Certified: 28-JUN-2018 13:58



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: Shoal River below Juniper Creek

Collection Date/Time: 06/07/2018 11:00

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1999101	EPA 180.1 Rev. 2.0	Turbidity	6.8	A	NTU	P346621	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P346891	
		Sulfate	1.1		mg SO4/L	P346894	
	SM 2120 B	Color (true)	67	A	PCU	P346607	
	SM 2320 B-97	Total Alkalinity	3.4		mg CaCO3/L	P347035	RPD
	SM 2540 C-97	TDS	29		mg/L	P346906	
	SM 2540 D-97	TSS	9	I	mg/L	P347122	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347039	
1999103	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P347108	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P347283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P346918	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P346976	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P347092	
1999105	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346608	
1999113	EPA 8321B	2,4-D	0.0020	U	ug/L	P346705	RPD
		Bentazon	8.0E-04	U	ug/L	P346705	RPD
		MCP	0.0020	U	ug/L	P346705	RPD
		Triclopyr**	0.0040	U	ug/L	P346705	RPD
		Imidacloprid	0.0071	I	ug/L	P346705	
		Diuron	0.0020	U	ug/L	P346705	
		Pyraclostrobin**	0.0020	U	ug/L	P346705	MS, RPD
		Primidone**	0.0040	U	ug/L	P346705	
		Linuron	0.0040	U	ug/L	P346705	
		Acetaminophen**	0.0080	U	ug/L	P346705	
		Fenuron	0.016	U	ug/L	P346705	
		Imazapyr**	0.010	I	ug/L	P346705	
		Carbamazepine**	4.0E-04	U	ug/L	P346705	
		Fluridone**	4.0E-04	U	ug/L	P346705	
		Hydrocodone**	8.0E-04	U	ug/L	P346705	
		Sucralose**	0.010	U	ug/L	P346706	

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: Shoal River below Titi Creek

Collection Date/Time: 06/07/2018 11:45

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1999102	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P346621	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P346891	
		Sulfate	1.1		mg SO4/L	P346894	
	SM 2120 B	Color (true)	65		PCU	P346607	
	SM 2320 B-97	Total Alkalinity	3.4		mg CaCO3/L	P347035	RPD
	SM 2540 C-97	TDS	23	I	mg/L	P346906	
	SM 2540 D-97	TSS	5	I	mg/L	P347122	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P347039	
1999104	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P347108	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P347283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P346918	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P346976	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P347092	
1999106	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346608	
1999114	EPA 8321B	2,4-D	0.0020	U	ug/L	P346705	RPD
		Bentazon	8.0E-04	U	ug/L	P346705	RPD
		MCP	0.0020	U	ug/L	P346705	RPD
		Triclopyr**	0.0040	U	ug/L	P346705	RPD
		Imidacloprid	0.0055	I	ug/L	P346705	
		Diuron	0.0020	U	ug/L	P346705	
		Pyraclostrobin**	0.0020	U	ug/L	P346705	MS, RPD
		Primidone**	0.0040	U	ug/L	P346705	
		Linuron	0.0040	U	ug/L	P346705	
		Acetaminophen**	0.0080	U	ug/L	P346705	
		Fenuron	0.016	U	ug/L	P346705	
		Imazapyr**	0.0085	I	ug/L	P346705	
		Carbamazepine**	4.0E-04	U	ug/L	P346705	
		Fluridone**	4.0E-04	U	ug/L	P346705	
		Hydrocodone**	8.0E-04	U	ug/L	P346705	
		Sucralose**	0.059		ug/L	P346706	

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: P346621

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346891

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346894

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347108

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347283

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346918

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346976

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346608

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

Reference Method: EPA 8321B
Batch ID: P346705

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P346705

Component	Result	Code	Units
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
MCP	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: P346706

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P346607

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P347035

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P346906

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P347122

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P347039

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P347092

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P347092

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: P346891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346894

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347108

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347283

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: P346918

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346976

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346608

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

Reference Method: EPA 8321B
Batch ID: P346705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	64.3		P	40 - 150
Acetaminophen	82.6		P	30 - 150
Bentazon	76.8		P	30 - 150
Carbamazepine	92.1		P	40 - 150
Diuron	85.2		P	40 - 150
Fenuron	101		P	40 - 150
Fluridone	73.6		P	40 - 150
Hydrocodone	92.9		P	40 - 150
Imazapyr	90.5		P	40 - 150
Imidacloprid	110		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P346705

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	67.8		P	40 - 150
MCPP	82.1		P	40 - 150
Primidone	99.0		P	40 - 150
Pyraclostrobin	42.3		P	40 - 150
Triclopyr	87.7		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346706

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	100		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P347035

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P347039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347092

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1998789	Chloride	94.6		P	90 - 110
1999065	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1998789	Sulfate	94.4		P	90 - 110
1999065	Sulfate	99.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999091	Ammonia-N	99.3	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999091	Kjeldahl Nitrogen	103	93.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999066	NO2NO3-N	98.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999091	Total-P	99.1	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1998964	O-Phosphate-P	95.9	96.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P346705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000080	2,4-D	51.7	76.8	P/P	40 - 150
2000080	Acetaminophen	80.8	76.7	P/P	30 - 150
2000080	Bentazon	57.1	40.4	P/P	30 - 150
2000080	Carbamazepine	71.8	64.3	P/P	40 - 150
2000080	Diuron	62.5	48.6	P/P	40 - 150
2000080	Fenuron	51.3	50.5	P/P	40 - 150
2000080	Fluridone	44.9	46.9	P/P	40 - 150
2000080	Hydrocodone	65.4	59.6	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P346705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2000080	Imazapyr	89.1	66.6	P/P	40 - 150
2000080	Imidacloprid	118	112	P/P	40 - 160
2000080	Linuron	60.1	53.6	P/P	40 - 150
2000080	MCP	77.2	108	P/P	40 - 150
2000080	Primidone	60.8	53.4	P/P	40 - 150
2000080	Pyraclostrobin	3.91	9.89	F/F	40 - 150
2000080	Triclopyr	58.9	103	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P346706

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999082	Sucralose	79.3	70.1	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P347039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999117	Fluoride	96.9	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1999103	Organic Carbon	99.4	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999101	Turbidity	8.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1998789	Chloride	1.30	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1998789	Sulfate	0.0844	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999091	Ammonia-N	3.89	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P347283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999091	Kjeldahl Nitrogen	5.71	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999066	NO2NO3-N	2.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999091	Total-P	0.999	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1998964	O-Phosphate-P	0.312	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P346705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2000080	2,4-D	39.0	Spike	F	0 - 30
2000080	Acetaminophen	5.14	Spike	P	0 - 30
2000080	Bentazon	34.3	Spike	F	0 - 30
2000080	Carbamazepine	11.1	Spike	P	0 - 30
2000080	Diuron	24.9	Spike	P	0 - 30
2000080	Fenuron	1.63	Spike	P	0 - 30
2000080	Fluridone	4.36	Spike	P	0 - 30
2000080	Hydrocodone	9.24	Spike	P	0 - 30
2000080	Imazapyr	10.3	Spike	P	0 - 30
2000080	Imidacloprid	4.81	Spike	P	0 - 30
2000080	Linuron	11.5	Spike	P	0 - 30
2000080	MCP	33.1	Spike	F	0 - 30
2000080	Primidone	13.0	Spike	P	0 - 30
2000080	Pyraclostrobin	86.8	Spike	F	0 - 30
2000080	Triclopyr	54.0	Spike	F	0 - 30

Reference Method: EPA 8321B
Batch ID: P346706

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999082	Sucralose	12.3	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P346607

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999101	Color (true)	2.28	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P347035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999117	Total Alkalinity	7.60	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P346906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999084	TDS	0.445	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P347039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999117	Fluoride	0.972	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P347092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1999103	Organic Carbon	0.650	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: 1999113

Field Sample ID: G4NW0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	42.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	96.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	100	P	30 - 160
EPA 8321B	Diuron-d6	95.1	P	30 - 160
EPA 8321B	Diuron-d6	41.6	P	30 - 160
EPA 8321B	Primidone-d5	109	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	40 - 160

Lab Sample ID: 1999114

Field Sample ID: G4NW0410

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	33.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	120	P	30 - 160
EPA 8321B	Carbamazepine-d10	99.9	P	30 - 160
EPA 8321B	Diuron-d6	77.3	P	30 - 160
EPA 8321B	Diuron-d6	49.6	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	123	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A84464

Included Lab Sample IDs: 1999101, 1999102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A84465

Included Lab Sample IDs: 1999105, 1999106

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.4	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84466

Included Lab Sample IDs: 1999101, 1999102

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A84498

Included Lab Sample IDs: 1999101, 1999102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	98.2	P/P	90 - 110
Sulfate	102	95.7	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A84573

Included Lab Sample IDs: 1999113, 1999114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	92.5	109	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84590

Included Lab Sample IDs: 1999103, 1999104

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

Reference Method: SM 2320 B-97

Run ID: A84646

Included Lab Sample IDs: 1999101, 1999102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A84646

Included Lab Sample IDs: 1999101, 1999102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A84646

Included Lab Sample IDs: 1999101, 1999102

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	99.0	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A84672

Included Lab Sample IDs: 1999103, 1999104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	96.4	P/P	90 - 110
Organic Carbon	97.2	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84675

Included Lab Sample IDs: 1999103, 1999104

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84712

Included Lab Sample IDs: 1999103, 1999104

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

Reference Method: EPA 8321B

Run ID: A84728

Included Lab Sample IDs: 1999113, 1999114

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	102	97.9	P/P	50 - 150
Acetaminophen	117	118	P/P	60 - 150
Bentazon	119	123	P/P	50 - 150
Carbamazepine	98.9	124	P/P	60 - 150
Diuron	106	106	P/P	60 - 150
Fenuron	107	113	P/P	60 - 150
Fluridone	126	120	P/P	60 - 160
Hydrocodone	118	119	P/P	60 - 150
Imazapyr	99.1	103	P/P	50 - 150
Imidacloprid	105	106	P/P	60 - 150
Linuron	109	95.2	P/P	60 - 150
MCPP	89.4	97.2	P/P	50 - 150
Primidone	101	118	P/P	60 - 150
Pyraclostrobin	144	146	P/P	60 - 150
Triclopyr	89.3	98.8	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A84751

Included Lab Sample IDs: 1999113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A84751

Included Lab Sample IDs: 1999113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	109	107	P/P	60 - 160
Carbamazepine	132	119	P/P	60 - 160
Diuron	98.7	123	P/P	60 - 150
Fenuron	103	106	P/P	60 - 150
Fluridone	113	109	P/P	60 - 160
Hydrocodone	108	103	P/P	60 - 150
Imazapyr	105	103	P/P	50 - 150
Imidacloprid	109	113	P/P	60 - 150
Linuron	112	115	P/P	60 - 150
Primidone	100	105	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					8.08	
EPA 300.0 Rev. 2.1	Chloride	99.4	94.6	98.5		1.30	
	Sulfate	97.7	94.4	99.3		0.0844	
EPA 350.1 Rev. 2.0	Ammonia-N	108	99.3	104			3.89
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	103	93.2			5.71
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.5	100			2.01
EPA 365.1 Rev. 2.0	Total-P	100	99.1	98.1			0.999
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	95.9	96.2			0.312
EPA 8321B	2,4-D	64.3	51.7	76.8			39.0
	Acetaminophen	82.6	80.8	76.7			5.14
	Bentazon	76.8	57.1	40.4			34.3
	Carbamazepine	92.1	71.8	64.3			11.1
	Diuron	85.2	62.5	48.6			24.9
	Fenuron	101	51.3	50.5			1.63
	Fluridone	73.6	44.9	46.9			4.36
	Hydrocodone	92.9	65.4	59.6			9.24
	Imazapyr	90.5	89.1	66.6			10.3
	Imidacloprid	110	118	112			4.81
	Linuron	67.8	60.1	53.6			11.5
	MCP	82.1	77.2	108			33.1
	Primidone	99.0	60.8	53.4			13.0
	Pyraclostrobin	42.3	3.91	9.89			86.8
	Sucralose	100	79.3	70.1			12.3
	Triclopyr	87.7	58.9	103			54.0
SM 2120 B	Color (true)					2.28	
SM 2320 B-97	Total Alkalinity	100				7.60	
SM 2540 C-97	TDS					0.445	
SM 4500 F-C-97	Fluoride	96.2	96.9	98.2			0.972
SM 5310 B-00	Organic Carbon	98.2	99.4	98.6			0.650

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1999101, 1999102
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1999101, 1999102
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1999101, 1999102
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1999103, 1999104
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1999103, 1999104
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1999103, 1999104
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1999103, 1999104
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1999105, 1999106
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1999113, 1999114
SM 2120 B / E31780	True Color measured at 450 nm	1999101, 1999102
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1999101, 1999102
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1999101, 1999102
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1999101, 1999102
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1999101, 1999102

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1999103, 1999104

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	06/08/2018			06/08/2018 15:48	Julia Storbeck	1999101, 1999102
EPA 300.0 Rev. 2.1	06/08/2018			06/14/2018 01:45	Lipi Saha	1999101
	06/08/2018			06/14/2018 01:57	Lipi Saha	1999102
EPA 350.1 Rev. 2.0	06/08/2018			06/18/2018 11:19	Ping Hua	1999103
	06/08/2018			06/18/2018 11:21	Ping Hua	1999104
EPA 351.2 Rev. 2.0	06/08/2018	06/21/2018 12:00	Adrian Shelby	06/22/2018 17:02	Tanya Welborn	1999103
	06/08/2018	06/21/2018 12:00	Adrian Shelby	06/22/2018 17:04	Tanya Welborn	1999104
EPA 353.2 Rev. 2.0	06/08/2018			06/14/2018 13:11	Lauren Bottorf	1999103
	06/08/2018			06/14/2018 13:12	Lauren Bottorf	1999104
EPA 365.1 Rev. 2.0	06/08/2018	06/15/2018 11:35	Sima Feizi	06/20/2018 12:33	Lipi Saha	1999103
	06/08/2018	06/15/2018 11:35	Sima Feizi	06/20/2018 12:34	Lipi Saha	1999104
EPA 365.1 Rev. 2.0 dissolved	06/08/2018			06/08/2018 14:58	Megan Treadwell	1999105
	06/08/2018			06/08/2018 14:59	Megan Treadwell	1999106
EPA 8321B	06/08/2018	06/13/2018 08:00	Hoor Shaik	06/13/2018 09:41	Mohammad Ghaffari	1999113
	06/08/2018	06/13/2018 08:00	Hoor Shaik	06/13/2018 09:59	Mohammad Ghaffari	1999114
	06/08/2018	06/13/2018 09:00	Hoor Shaik	06/14/2018 14:55	Juyoung Kim	1999114
	06/08/2018	06/13/2018 09:00	Hoor Shaik	06/14/2018 18:57	Juyoung Kim	1999113
	06/08/2018	06/13/2018 09:00	Hoor Shaik	06/14/2018 19:32	Juyoung Kim	1999114
	06/08/2018	06/13/2018 09:00	Hoor Shaik	06/19/2018 01:11	Juyoung Kim	1999113
SM 2120 B	06/08/2018			06/08/2018 15:09	Julia Storbeck	1999101
	06/08/2018			06/08/2018 15:12	Julia Storbeck	1999102
SM 2320 B-97	06/08/2018			06/16/2018 14:17	Dale L. Simmons	1999101
	06/08/2018			06/16/2018 14:57	Dale L. Simmons	1999102
SM 2540 C-97	06/08/2018			06/12/2018 17:08	Yijie Li	1999101, 1999102
SM 2540 D-97	06/08/2018			06/12/2018 15:45	Yijie Li	1999101, 1999102
SM 4500 F-C-97	06/08/2018			06/16/2018 14:17	Dale L. Simmons	1999101
	06/08/2018			06/16/2018 14:57	Dale L. Simmons	1999102
SM 5310 B-00	06/08/2018			06/18/2018 18:09	Megan Treadwell	1999103
	06/08/2018			06/18/2018 22:52	Megan Treadwell	1999104