

Chemical Analysis Report

CEN-DIST-2018-10-24-02

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

Event Description: **Wolf / Crab / Little**
Request ID: **RQ-2018-10-08-46**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 15-NOV-2018 15:21

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Wolf Creek @ Deer Park Rd

Collection Date/Time: 10/23/2018 09:57

Field ID: G3CE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2035528	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P353758	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P353867	
		Sulfate	4.1		mg SO4/L	P353869	
	SM 2120 B	Color (true)	95		PCU	P353619	
	SM 2320 B-97	Total Alkalinity	62		mg CaCO3/L	P353898	
	SM 2540 C-97	TDS	147		mg/L	P354124	
	SM 2540 D-97	TSS	8	I	mg/L	P354020	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P353903	
2035529	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P354090	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P353914	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P353963	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P353763	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P353794	
2035530	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P353642	

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: Bull Creek @ Upstream of 441 Bridge

Collection Date/Time: 10/23/2018 11:11

Field ID: G3CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2035525	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P353758	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P353867	
		Sulfate	1.6		mg SO4/L	P353869	
	SM 2120 B	Color (true)	420		PCU	P353618	
	SM 2320 B-97	Total Alkalinity	1.8	I	mg CaCO3/L	P353898	
	SM 2540 C-97	TDS	90		mg/L	P354124	
	SM 2540 D-97	TSS	3	I	mg/L	P354020	
	SM 4500 F-C-97	Fluoride	0.041	I	mg F/L	P353903	
2035526	EPA 350.1 Rev. 2.0	Ammonia-N	0.36		mg N/L	P354090	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P353913	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.080		mg N/L	P353963	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P353763	
	SM 5310 B-00	Organic Carbon	34		mg C/L	P353794	
2035527	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P353642	
2035545	EPA 8321B	2,4-D	0.0020	U	ug/L	P353529	
		Bentazon	8.0E-04	U	ug/L	P353529	
		MCP	0.0020	U	ug/L	P353529	
		Triclopyr**	0.0040	U	ug/L	P353529	MS
		Imidacloprid	0.0020	U	ug/L	P353529	MS
		Diuron	0.0020	U	ug/L	P353529	
		Pyraclostrobin**	0.0020	U	ug/L	P353529	
		Primidone**	0.0040	U	ug/L	P353529	
		Linuron	0.0040	U	ug/L	P353529	
		Acetaminophen**	0.0080	U	ug/L	P353529	
		Fenuron	0.016	U	ug/L	P353529	
		Imazapyr**	0.0040	U	ug/L	P353529	
		Carbamazepine**	8.0E-04	U	ug/L	P353529	
		Fluridone**	4.0E-04	U	ug/L	P353529	
		Hydrocodone**	8.0E-04	U	ug/L	P353529	
		Naproxen**	0.0080	U	ug/L	P353529	
		Ibuprofen**	0.020	U	ug/L	P353529	
		Sucralose**	0.010	U	ug/L	P353544	
		Acesulfame K**	0.10	U	ug/L	P353544	

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: Crabgrass Creek @ 250m south of Highway192 Bridge **Collection Date/Time: 10/23/2018 12:10**

Field ID: G3CE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2035531	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P353758	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P353867	
		Sulfate	1.5		mg SO4/L	P353869	
	SM 2120 B	Color (true)	130	A	PCU	P353619	
	SM 2320 B-97	Total Alkalinity	94		mg CaCO3/L	P353898	
	SM 2540 C-97	TDS	169	A	mg/L	P354125	
	SM 2540 D-97	TSS	3	IA	mg/L	P354021	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P353903	
2035532	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P354090	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P353914	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P353963	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P353763	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P353794	
2035533	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.080		mg P/L	P353647	

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: P353758

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353867

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353869

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354090

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353913

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353914

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353963

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353763

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353642

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353647

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

Reference Method: EPA 8321B
Batch ID: P353529

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P353544

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P353618

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P353619

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P353898

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: P354124

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P354125

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354020

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P354021

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P353903

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P353794

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: P353867

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353869

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354090

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: P353913

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353914

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353963

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: P353763

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353642

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353647

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P353529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	90.6		P	40 - 150
Acetaminophen	143		P	30 - 150
Bentazon	73.3		P	30 - 150
Carbamazepine	97.0		P	40 - 150
Diuron	93.3		P	40 - 150
Fenuron	133		P	40 - 150
Fluridone	116		P	40 - 150
Hydrocodone	130		P	40 - 150
Ibuprofen	41.3		P	40 - 150
Imazapyr	110		P	40 - 150
Imidacloprid	137		P	40 - 160
Linuron	87.2		P	40 - 150
MCPP	97.5		P	40 - 150
Naproxen	92.8		P	40 - 150
Primidone	130		P	40 - 150
Pyraclostrobin	93.1		P	40 - 150
Triclopyr	99.9		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P353544

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	84.0		P	40 - 150
Sucralose	83.5		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P353618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P353619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P353898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P353903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	91 - 105

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P353794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035468	Chloride	96.4		P	90 - 110
2035859	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035468	Sulfate	98.8		P	90 - 110
2035859	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354090

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035529	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035471	Kjeldahl Nitrogen	101	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035529	Kjeldahl Nitrogen	101	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035473	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035874	Total-P	99.3	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035474	O-Phosphate-P	96.6	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035876	O-Phosphate-P	98.6	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P353529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035512	2,4-D	139	120	P/P	40 - 150
2035512	Acetaminophen	126	135	P/P	30 - 150
2035512	Bentazon	95.7	68.5	P/P	30 - 150
2035512	Carbamazepine	74.4	74.6	P/P	40 - 150
2035512	Diuron	65.9	65.5	P/P	40 - 150
2035512	Fenuron	114	115	P/P	40 - 150
2035512	Fluridone	105	107	P/P	40 - 150
2035512	Hydrocodone	119	123	P/P	40 - 150
2035512	Ibuprofen	44.5	41.7	P/P	40 - 150
2035512	Imazapyr	101	110	P/P	40 - 150
2035512	Imidacloprid	200	187	F/F	40 - 160
2035512	Linuron	68.7	67.9	P/P	40 - 150
2035512	MCPP	136	134	P/P	40 - 150
2035512	Naproxen	103	102	P/P	40 - 150
2035512	Primidone	121	118	P/P	40 - 150
2035512	Pyraclostrobin	85.2	81.1	P/P	40 - 150
2035512	Triclopyr	165	132	F/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P353544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2034746	Acesulfame K	104	99.7	P/P	40 - 150
2034746	Sucralose	81.8	78.5	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P353903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035886	Fluoride	98.9	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P353794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2035305	Organic Carbon	95.2	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P353758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035470	Turbidity	1.48	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035468	Chloride	0.272	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P353869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035468	Sulfate	0.0136	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354090

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035529	Ammonia-N	1.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035471	Kjeldahl Nitrogen	0.703	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P353914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035529	Kjeldahl Nitrogen	0.661	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P353963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035473	NO2NO3-N	0.962	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P353763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035874	Total-P	0.432	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035474	O-Phosphate-P	0.722	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P353647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035876	O-Phosphate-P	1.06	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P353529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035512	2,4-D	10.4	Spike	P	0 - 30
2035512	Acetaminophen	7.33	Spike	P	0 - 30
2035512	Bentazon	19.9	Spike	P	0 - 30
2035512	Carbamazepine	0.268	Spike	P	0 - 30
2035512	Diuron	0.333	Spike	P	0 - 30
2035512	Fenuron	0.665	Spike	P	0 - 30
2035512	Fluridone	2.37	Spike	P	0 - 30
2035512	Hydrocodone	3.02	Spike	P	0 - 30
2035512	Ibuprofen	6.51	Spike	P	0 - 30
2035512	Imazapyr	5.27	Spike	P	0 - 30
2035512	Imidacloprid	5.73	Spike	P	0 - 30
2035512	Linuron	1.21	Spike	P	0 - 30
2035512	MCP	1.79	Spike	P	0 - 30
2035512	Naproxen	0.735	Spike	P	0 - 30
2035512	Primidone	2.34	Spike	P	0 - 30
2035512	Pyraclostrobin	4.90	Spike	P	0 - 30
2035512	Triclopyr	22.1	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P353544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2034746	Acesulfame K	3.97	Spike	P	0 - 30
2034746	Sucralose	3.21	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P353618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035460	Color (true)	3.82	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P353619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035531	Color (true)	1.37	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P353898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035886	Total Alkalinity	0.504	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P354124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035460	TDS	7.96	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P354125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035531	TDS	2.37	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P353903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035886	Fluoride	0.940	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P353794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2035305	Organic Carbon	0.231	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: 2035545
Field Sample ID: G3CE0009

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	79.9	P	30 - 160
EPA 8321B	Diuron-d6	64.1	P	30 - 160
EPA 8321B	Endothall-d6	109	P	40 - 160
EPA 8321B	Ibuprofen-d3	108	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	123	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A87259

Included Lab Sample IDs: 2035525, 2035528, 2035531

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A87273

Included Lab Sample IDs: 2035527, 2035530, 2035533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.0	P/P	90 - 110
O-Phosphate-P	99.7	99.4	P/P	90 - 110
O-Phosphate-P	99.9	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A87320

Included Lab Sample IDs: 2035525, 2035528, 2035531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A87330

Included Lab Sample IDs: 2035545

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	75.4	77.5	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A87335

Included Lab Sample IDs: 2035526, 2035529, 2035532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87360

Included Lab Sample IDs: 2035526, 2035529, 2035532

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A87368

Included Lab Sample IDs: 2035525, 2035528, 2035531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	104	P/P	90 - 110
Chloride	104	104	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A87369

Included Lab Sample IDs: 2035545

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	61.7	60.8	P/P	60 - 160

Reference Method: SM 2320 B-97

Run ID: A87382

Included Lab Sample IDs: 2035525, 2035528, 2035531

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A87382

Included Lab Sample IDs: 2035525, 2035528, 2035531

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87412

Included Lab Sample IDs: 2035526, 2035529, 2035532

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87414

Included Lab Sample IDs: 2035526, 2035529, 2035532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	109	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A87443

Included Lab Sample IDs: 2035545

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	111	108	P/P	50 - 150
Acetaminophen	130	120	P/P	60 - 160
Bentazon	106	105	P/P	50 - 160
Carbamazepine	127	125	P/P	60 - 160
Diuron	111	139	P/P	60 - 150
Fenuron	109	107	P/P	60 - 150
Fluridone	126	126	P/P	60 - 160
Hydrocodone	127	132	P/P	60 - 150
Ibuprofen	75.9	79.5	P/P	50 - 160
Imazapyr	100	121	P/P	50 - 150
Imidacloprid	129	128	P/P	60 - 160
Linuron	112	125	P/P	60 - 150
MCPP	103	100	P/P	50 - 150
Naproxen	110	112	P/P	50 - 160
Primidone	111	129	P/P	60 - 160
Pyraclostrobin	124	126	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A87443

Included Lab Sample IDs: 2035545

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Triclopyr	98.9	108	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A87465

Included Lab Sample IDs: 2035526, 2035529, 2035532

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	105	105	P/P	90 - 110
Ammonia-N	105	105	P/P	90 - 110
Ammonia-N	105	103	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.48	
EPA 300.0 Rev. 2.1	Chloride	101	96.4	99.8	0.272	
	Sulfate	99.7	98.8	100	0.0136	
EPA 350.1 Rev. 2.0	Ammonia-N	104	103	104		1.10
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	101	99.9		0.703
	Kjeldahl Nitrogen	105	101	99.4		0.661
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	104	104		0.962
EPA 365.1 Rev. 2.0	Total-P	101	99.3	98.8		0.432
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.6	97.3		0.722
	O-Phosphate-P	99.9	98.6	100		1.06
EPA 8321B	2,4-D	90.6	139	120		10.4
	Acesulfame K	84.0	104	99.7		3.97
	Acetaminophen	143	126	135		7.33
	Bentazon	73.3	95.7	68.5		19.9
	Carbamazepine	97.0	74.4	74.6		0.268
	Diuron	93.3	65.9	65.5		0.333
	Fenuron	133	114	115		0.665
	Fluridone	116	105	107		2.37
	Hydrocodone	130	119	123		3.02
	Ibuprofen	41.3	44.5	41.7		6.51
	Imazapyr	110	101	110		5.27
	Imidacloprid	137	200	187		5.73
	Linuron	87.2	68.7	67.9		1.21
	MCPP	97.5	136	134		1.79
	Naproxen	92.8	103	102		0.735
	Primidone	130	121	118		2.34
	Pyraclostrobin	93.1	85.2	81.1		4.90
	Sucralose	83.5	81.8	78.5		3.21
	Triclopyr	99.9	165	132		22.1
SM 2120 B	Color (true)	102			3.82	
	Color (true)	102			1.37	
SM 2320 B-97	Total Alkalinity	102			0.504	
SM 2540 C-97	TDS				7.96	
	TDS				2.37	
SM 4500 F-C-97	Fluoride	99.1	98.9	100		0.940
SM 5310 B-00	Organic Carbon	96.1	95.2	95.6		0.231

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2035525, 2035528, 2035531
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2035525, 2035528, 2035531
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2035525, 2035528, 2035531
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2035526, 2035529, 2035532
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2035526, 2035529, 2035532
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2035526, 2035529, 2035532
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2035526, 2035529, 2035532

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2035527, 2035530, 2035533
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2035545
SM 2120 B / E31780	True Color measured at 450 nm	2035525, 2035528, 2035531
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2035525, 2035528, 2035531
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2035525, 2035528, 2035531
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2035525, 2035528, 2035531
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2035525, 2035528, 2035531
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2035526, 2035529, 2035532

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	10/24/2018			10/24/2018 17:02	Megan Treadwell	2035525, 2035528, 2035531
EPA 300.0 Rev. 2.1	10/24/2018			10/30/2018 01:35	Irina Carbone	2035525
	10/24/2018			10/30/2018 02:11	Irina Carbone	2035528
	10/24/2018			10/30/2018 02:23	Irina Carbone	2035531
EPA 350.1 Rev. 2.0	10/24/2018			11/01/2018 12:42	Ping Hua	2035529
	10/24/2018			11/01/2018 14:11	Ping Hua	2035526
	10/24/2018			11/01/2018 14:19	Ping Hua	2035532
EPA 351.2 Rev. 2.0	10/24/2018	10/30/2018 11:55	Adrian Shelby	10/31/2018 12:31	Virginia P. Brown	2035526
	10/24/2018	10/30/2018 11:55	Adrian Shelby	10/31/2018 12:36	Virginia P. Brown	2035529
	10/24/2018	10/30/2018 11:55	Adrian Shelby	10/31/2018 12:41	Virginia P. Brown	2035532
EPA 353.2 Rev. 2.0	10/24/2018			10/31/2018 10:15	Beverly Y. Sanders	2035526
	10/24/2018			10/31/2018 10:17	Beverly Y. Sanders	2035529
	10/24/2018			10/31/2018 10:18	Beverly Y. Sanders	2035532
EPA 365.1 Rev. 2.0	10/24/2018	10/26/2018 12:55	Sima Feizi	10/29/2018 12:10	Lipi Saha	2035526
	10/24/2018	10/26/2018 12:55	Sima Feizi	10/29/2018 12:11	Lipi Saha	2035529
	10/24/2018	10/26/2018 12:55	Sima Feizi	10/29/2018 12:12	Lipi Saha	2035532
EPA 365.1 Rev. 2.0 dissolved	10/24/2018			10/24/2018 17:15	Julia Storbeck	2035533
	10/24/2018			10/24/2018 18:19	Julia Storbeck	2035530
	10/24/2018			10/24/2018 18:44	Julia Storbeck	2035527
EPA 8321B	10/24/2018	10/25/2018 10:00	Hoor Shaik	10/27/2018 17:16	Juyoung Kim	2035545
	10/24/2018	10/25/2018 10:00	Hoor Shaik	10/28/2018 09:59	Juyoung Kim	2035545
	10/24/2018	10/25/2018 13:00	Rebecca Ware	10/27/2018 18:44	Mohammad Ghaffari	2035545
	10/24/2018	10/25/2018 13:00	Rebecca Ware	10/29/2018 19:58	Rebecca Ware	2035545
SM 2120 B	10/24/2018			10/24/2018 16:38	Chelsea Hernandez	2035528
	10/24/2018			10/24/2018 16:39	Chelsea Hernandez	2035531
	10/24/2018			10/24/2018 16:41	Chelsea Hernandez	2035525
SM 2320 B-97	10/24/2018			10/29/2018 05:48	Dale L. Simmons	2035525
	10/24/2018			10/29/2018 05:59	Dale L. Simmons	2035528
	10/24/2018			10/29/2018 06:09	Dale L. Simmons	2035531
SM 2540 C-97	10/24/2018			10/25/2018 15:41	Yijie Li	2035525, 2035528, 2035531
SM 2540 D-97	10/24/2018			10/25/2018 15:41	Yijie Li	2035525, 2035528, 2035531
SM 4500 F-C-97	10/24/2018			10/29/2018 05:48	Dale L. Simmons	2035525
	10/24/2018			10/29/2018 05:59	Dale L. Simmons	2035528
	10/24/2018			10/29/2018 06:09	Dale L. Simmons	2035531
SM 5310 B-00	10/24/2018			10/27/2018 01:34	Megan Treadwell	2035526
	10/24/2018			10/27/2018 01:48	Megan Treadwell	2035529
	10/24/2018			10/27/2018 02:02	Megan Treadwell	2035532