

Chemical Analysis Report

CEN-DIST-2018-12-18-01

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

Event Description: **Little / Crab**
Request ID: **RQ-2018-12-10-20**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 07-JAN-2019 15:27



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 (3075)

Collection Date/Time: 12/17/2018 10:09

Field ID: G3CE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2049407	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P356347	
	EPA 300.0 Rev. 2.1	Chloride	18	A	mg Cl/L	P356554	
		Sulfate	2.4	A	mg SO4/L	P356556	
	SM 2120 B	Color (true)	68		PCU	P356330	
	SM 2320 B-97	Total Alkalinity	94		mg CaCO3/L	P356562	
	SM 2540 C-97	TDS	161	A	mg/L	P356676	
	SM 2540 D-97	TSS	2	IA	mg/L	P356637	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P356663	
2049409	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P356441	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P356386	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P356401	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P356392	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P356462	
2049411	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P356341	

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 (3100)

Collection Date/Time: 12/17/2018 11:33

Field ID: G3CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2049408	EPA 180.1 Rev. 2.0	Turbidity	3.6	A	NTU	P356347	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P356554	
		Sulfate	3.2		mg SO4/L	P356556	
	SM 2120 B	Color (true)	240		PCU	P356330	
	SM 2320 B-97	Total Alkalinity	0.68	I	mg CaCO3/L	P356562	
	SM 2540 C-97	TDS	93		mg/L	P356676	
	SM 2540 D-97	TSS	3	I	mg/L	P356637	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P356663	
2049410	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P356442	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P356387	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P356401	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P356392	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P356462	
2049412	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P356341	
2049422	EPA 8321B	2,4-D	0.0023	I	ug/L	P356147	
		Sucralose**	0.010	U	ug/L	P356284	
		Bentazon	8.0E-04	U	ug/L	P356147	
		MCPP	0.0020	U	ug/L	P356147	
		Triclopyr**	0.0040	U	ug/L	P356147	
		Imidacloprid	0.0020	U	ug/L	P356147	MS
		Diuron	0.0020	U	ug/L	P356147	
		Pyraclostrobin**	0.0020	U	ug/L	P356147	
		Primidone**	0.0040	U	ug/L	P356147	
		Linuron	0.0040	U	ug/L	P356147	
		Acetaminophen**	0.0080	U	ug/L	P356147	MS
		Fenuron	0.030	I	ug/L	P356147	
		Imazapyr**	0.0040	U	ug/L	P356147	
		Carbamazepine**	8.0E-04	U	ug/L	P356147	
		Fluridone**	4.0E-04	U	ug/L	P356147	
		Hydrocodone**	8.0E-04	U	ug/L	P356147	
		Naproxen**	0.0080	U	ug/L	P356147	
		Ibuprofen**	0.020	U	ug/L	P356147	
		Acesulfame K**	0.10	U	ug/L	P356284	

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 Highway
 192 Bridge (3073)**

Collection Date/Time: 12/17/2018 12:25

Field ID: G3CE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2049413	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P356348	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P356554	
		Sulfate	3.1		mg SO4/L	P356556	
	SM 2120 B	Color (true)	60		PCU	P356331	
	SM 2320 B-97	Total Alkalinity	134		mg CaCO3/L	P356562	
	SM 2540 C-97	TDS	203	A	mg/L	P356677	
	SM 2540 D-97	TSS	2	UA	mg/L	P356638	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P356663	
2049414	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P356442	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P356387	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P356402	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P356392	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P356462	
2049415	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.096		mg P/L	P356341	

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: P356347

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356348

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356554

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356556

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356441

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356442

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356386

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356387

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356401

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356402

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356392

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356341

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

Reference Method: EPA 8321B
Batch ID: P356147

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: P356284

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

Reference Method: SM 2120 B
Batch ID: P356330

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P356331

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P356562

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

Reference Method: SM 2540 C-97
Batch ID: P356676

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P356677

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356637

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356638

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P356663

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P356462

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: P356554

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356441

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356442

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356386

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356387

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356401

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356402

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356392

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356341

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

Reference Method: EPA 8321B
Batch ID: P356147

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	74.8		P	40 - 150
Acetaminophen	144		P	30 - 150
Bentazon	86.9		P	30 - 150
Carbamazepine	104		P	40 - 150
Diuron	96.8		P	40 - 150
Fenuron	137		P	40 - 150
Fluridone	124		P	40 - 150
Hydrocodone	113		P	40 - 150
Ibuprofen	68.1		P	40 - 150
Imazapyr	106		P	40 - 150
Imidacloprid	102		P	40 - 160
Linuron	91.9		P	40 - 150
MCPP	96.3		P	40 - 150
Naproxen	68.8		P	40 - 150
Primidone	111		P	40 - 150
Pyraclostrobin	70.7		P	40 - 150
Triclopyr	50.5		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P356284

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	104		P	40 - 150
Sucralose	107		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P356330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P356331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P356562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P356663

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P356462

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049407	Chloride	98.0		P	90 - 110
2049454	Chloride	94.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049407	Sulfate	97.1		P	90 - 110
2049454	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049370	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049414	Ammonia-N	97.5	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049369	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049436	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049358	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049414	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049409	Total-P	104	99.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049411	O-Phosphate-P	95.4	97.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P356147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048659	2,4-D	91.9	99.6	P/P	40 - 150
2048659	Acetaminophen	129	153	P/F	30 - 150
2048659	Bentazon	39.5	43.4	P/P	30 - 150
2048659	Carbamazepine	81.7	91.3	P/P	40 - 150
2048659	Diuron	70.5	81.1	P/P	40 - 150
2048659	Fenuron	110	126	P/P	40 - 150
2048659	Fluridone	105	121	P/P	40 - 150
2048659	Hydrocodone	99.8	114	P/P	40 - 150
2048659	Ibuprofen	59.5	70.6	P/P	40 - 150
2048659	Imazapyr	83.4	102	P/P	40 - 150
2048659	Imidacloprid	185	220	F/F	40 - 160
2048659	Linuron	77.3	80.7	P/P	40 - 150
2048659	MCP	113	123	P/P	40 - 150
2048659	Naproxen	69.3	54.7	P/P	40 - 150
2048659	Primidone	96.1	109	P/P	40 - 150
2048659	Pyraclostrobin	88.0	85.3	P/P	40 - 150
2048659	Triclopyr	66.2	63.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P356284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2048940	Acesulfame K	78.3	82.9	P/P	40 - 150
2048940	Sucralose	105	109	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P356663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049413	Fluoride	95.9	95.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P356462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2049368	Organic Carbon	95.6	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049408	Turbidity	11.5	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049431	Turbidity	17.9	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049407	Chloride	0.320	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049407	Sulfate	0.177	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049370	Ammonia-N	0.111	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049414	Ammonia-N	1.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049369	Kjeldahl Nitrogen	0.829	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049436	Kjeldahl Nitrogen	0.995	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049358	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049414	NO2NO3-N	0.443	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049409	Total-P	3.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049411	O-Phosphate-P	1.05	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P356147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048659	2,4-D	7.78	Spike	P	0 - 30
2048659	Acetaminophen	17.0	Spike	P	0 - 30
2048659	Bentazon	5.65	Spike	P	0 - 30
2048659	Carbamazepine	11.0	Spike	P	0 - 30
2048659	Diuron	14.0	Spike	P	0 - 30
2048659	Fenuron	14.1	Spike	P	0 - 30
2048659	Fluridone	7.67	Spike	P	0 - 30
2048659	Hydrocodone	13.4	Spike	P	0 - 30
2048659	Ibuprofen	17.0	Spike	P	0 - 30
2048659	Imazapyr	15.1	Spike	P	0 - 30
2048659	Imidacloprid	16.1	Spike	P	0 - 30
2048659	Linuron	4.29	Spike	P	0 - 30
2048659	MCPP	7.54	Spike	P	0 - 30
2048659	Naproxen	23.7	Spike	P	0 - 30
2048659	Primidone	11.6	Spike	P	0 - 30
2048659	Pyraclostrobin	3.09	Spike	P	0 - 30
2048659	Triclopyr	4.17	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P356284

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

Reference Method: EPA 8321B
Batch ID: P356284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2048940	Acesulfame K	5.65	Spike	P	0 - 30
2048940	Sucralose	3.46	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P356330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049364	Color (true)	1.14	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P356331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049431	Color (true)	1.26	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P356562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050067	Total Alkalinity	0.285	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P356676

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049407	TDS	4.97	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P356677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049413	TDS	0.985	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P356663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049413	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P356462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2049368	Organic Carbon	0.709	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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: 2049422
Field Sample ID: G3CE0009

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	82.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	134	P	30 - 160
EPA 8321B	Carbamazepine-d10	66.7	P	30 - 160
EPA 8321B	Diuron-d6	58.8	P	30 - 160
EPA 8321B	Endothall-d6	129	P	40 - 160
EPA 8321B	Endothall-d6	129	P	40 - 160
EPA 8321B	Ibuprofen-d3	101	P	60 - 160
EPA 8321B	Primidone-d5	88.6	P	30 - 160
EPA 8321B	Sucralose-d6	109	P	40 - 160
EPA 8321B	Sucralose-d6	109	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A88413

Included Lab Sample IDs: 2049407, 2049408, 2049413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.0	P/P	90 - 115
Color (true)	101	101	P/P	90 - 115
Color (true)	99.0	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88415

Included Lab Sample IDs: 2049411, 2049412, 2049415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	98.8	P/P	90 - 110
O-Phosphate-P	99.5	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88418

Included Lab Sample IDs: 2049407, 2049408, 2049413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A88420

Included Lab Sample IDs: 2049422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	106	113	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88433

Included Lab Sample IDs: 2049409, 2049410, 2049414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88458

Included Lab Sample IDs: 2049409, 2049410, 2049414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88460

Included Lab Sample IDs: 2049409, 2049410, 2049414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	90 - 110
Total-P	102	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A88466

Included Lab Sample IDs: 2049409, 2049410, 2049414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	93.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88481

Included Lab Sample IDs: 2049407, 2049408, 2049413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	99.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88499

Included Lab Sample IDs: 2049409, 2049410, 2049414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	97.7	P/P	90 - 110
Kjeldahl Nitrogen	97.7	99.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88515

Included Lab Sample IDs: 2049407, 2049408, 2049413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.5	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A88541

Included Lab Sample IDs: 2049422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.6	87.0	P/P	50 - 150
Acetaminophen	119	159	P/P	60 - 160
Bentazon	129	111	P/P	50 - 160
Carbamazepine	115	116	P/P	60 - 150
Diuron	116	106	P/P	60 - 150
Fenuron	109	121	P/P	60 - 150
Fluridone	106	117	P/P	60 - 160
Hydrocodone	97.9	102	P/P	60 - 150
Ibuprofen	100	91.6	P/P	50 - 160
Imazapyr	109	98.1	P/P	50 - 150
Imidacloprid	101	97.5	P/P	60 - 150
Linuron	117	113	P/P	60 - 150
MCPP	91.7	83.5	P/P	50 - 150
Naproxen	91.1	51.9	P/P	50 - 160
Primidone	101	102	P/P	60 - 150
Pyraclostrobin	114	118	P/P	60 - 150
Triclopyr	93.7	84.4	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A88542

Included Lab Sample IDs: 2049407, 2049408, 2049413

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

Reference Method: EPA 8321B

Run ID: A88606

Included Lab Sample IDs: 2049422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	112	114	P/P	60 - 160

* 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				11.5	
	Turbidity				17.9	
EPA 300.0 Rev. 2.1	Chloride	99.1	98.0	94.9	0.320	
	Sulfate	96.6	97.1	97.1	0.177	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	101	101		0.111
	Ammonia-N	101	97.5	99.5		1.15
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	102		0.829
	Kjeldahl Nitrogen	104	102	101		0.995
EPA 353.2 Rev. 2.0	NO2NO3-N	101	100	102		1.45
	NO2NO3-N	102	101	102		0.443
EPA 365.1 Rev. 2.0	Total-P	101	104	99.4		3.88
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	95.4	97.0		1.05
EPA 8321B	2,4-D	74.8	91.9	99.6		7.78
	Acesulfame K	104	78.3	82.9		5.65
	Acetaminophen	144	129	153		17.0
	Bentazon	86.9	39.5	43.4		5.65
	Carbamazepine	104	81.7	91.3		11.0
	Diuron	96.8	70.5	81.1		14.0
	Fenuron	137	110	126		14.1
	Fluridone	124	105	121		7.67
	Hydrocodone	113	99.8	114		13.4
	Ibuprofen	68.1	59.5	70.6		17.0
	Imazapyr	106	83.4	102		15.1
	Imidacloprid	102	185	220		16.1
	Linuron	91.9	77.3	80.7		4.29
	MCPP	96.3	113	123		7.54
	Naproxen	68.8	69.3	54.7		23.7
	Primidone	111	96.1	109		11.6
	Pyraclostrobin	70.7	88.0	85.3		3.09
	Sucralose	107	105	109		3.46
	Triclopyr	50.5	66.2	63.5		4.17
SM 2120 B	Color (true)	101			1.14	
	Color (true)	99.8			1.26	
SM 2320 B-97	Total Alkalinity	101			0.285	
SM 2540 C-97	TDS				4.97	
	TDS				0.985	
SM 4500 F-C-97	Fluoride	98.7	95.9	95.9		0.0
SM 5310 B-00	Organic Carbon	95.0	95.6	94.4		0.709

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2049407, 2049408, 2049413
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2049407, 2049408, 2049413
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2049407, 2049408, 2049413
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2049409, 2049410, 2049414
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2049409, 2049410, 2049414
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2049409, 2049410, 2049414

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2049409, 2049410, 2049414
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2049411, 2049412, 2049415
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2049422
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2049422
SM 2120 B / E31780	True Color measured at 450 nm	2049407, 2049408, 2049413
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2049407, 2049408, 2049413
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2049407, 2049408, 2049413
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2049407, 2049408, 2049413
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2049407, 2049408, 2049413
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2049409, 2049410, 2049414

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	12/18/2018			12/18/2018 17:10	Megan Treadwell	2049407, 2049408, 2049413
EPA 300.0 Rev. 2.1	12/18/2018			12/21/2018 21:33	Lipi Saha	2049407
	12/18/2018			12/21/2018 22:21	Lipi Saha	2049408
	12/18/2018			12/21/2018 22:34	Lipi Saha	2049413
EPA 350.1 Rev. 2.0	12/18/2018			12/19/2018 11:49	Ping Hua	2049409
	12/18/2018			12/19/2018 12:01	Ping Hua	2049414
	12/18/2018			12/19/2018 12:06	Ping Hua	2049410
EPA 351.2 Rev. 2.0	12/18/2018	12/19/2018 11:00	Adrian Shelby	12/21/2018 13:37	Joseph Suarez	2049409
	12/18/2018	12/19/2018 11:00	Adrian Shelby	12/21/2018 13:45	Joseph Suarez	2049410
	12/18/2018	12/19/2018 11:00	Adrian Shelby	12/21/2018 13:46	Joseph Suarez	2049414
EPA 353.2 Rev. 2.0	12/18/2018			12/19/2018 13:19	Lauren Bottorf	2049409
	12/18/2018			12/19/2018 13:20	Lauren Bottorf	2049410
	12/18/2018			12/19/2018 13:27	Lauren Bottorf	2049414
EPA 365.1 Rev. 2.0	12/18/2018	12/19/2018 13:15	Sima Feizi	12/20/2018 11:26	Beverly Y. Sanders	2049409
	12/18/2018	12/19/2018 13:15	Sima Feizi	12/20/2018 11:32	Beverly Y. Sanders	2049410
	12/18/2018	12/19/2018 13:15	Sima Feizi	12/20/2018 11:34	Beverly Y. Sanders	2049414
EPA 365.1 Rev. 2.0 dissolved	12/18/2018			12/18/2018 14:41	Jhamieka S. Greenwood	2049411
	12/18/2018			12/18/2018 15:02	Jhamieka S. Greenwood	2049412
	12/18/2018			12/18/2018 15:03	Jhamieka S. Greenwood	2049415
EPA 8321B	12/18/2018	12/18/2018 11:00	Rebecca Ware	01/02/2019 18:53	Rebecca Ware	2049422
	12/18/2018	12/18/2018 11:00	Rebecca Ware	12/18/2018 17:56	Rebecca Ware	2049422
	12/18/2018	12/19/2018 12:00	Hoor Shaik	12/27/2018 02:05	Juyoung Kim	2049422
SM 2120 B	12/18/2018			12/18/2018 14:37	Chelsea Hernandez	2049407
	12/18/2018			12/18/2018 14:41	Chelsea Hernandez	2049413
	12/18/2018			12/18/2018 15:08	Chelsea Hernandez	2049408
SM 2320 B-97	12/18/2018			12/22/2018 06:50	Dale L. Simmons	2049407
	12/18/2018			12/22/2018 07:01	Dale L. Simmons	2049408
	12/18/2018			12/22/2018 07:12	Dale L. Simmons	2049413
SM 2540 C-97	12/18/2018			12/20/2018 14:11	Yijie Li	2049407, 2049408, 2049413
SM 2540 D-97	12/18/2018			12/20/2018 14:11	Yijie Li	2049407, 2049408, 2049413
SM 4500 F-C-97	12/18/2018			12/28/2018 01:32	Dale L. Simmons	2049413
	12/18/2018			12/28/2018 01:50	Dale L. Simmons	2049407
	12/18/2018			12/28/2018 01:58	Dale L. Simmons	2049408
SM 5310 B-00	12/18/2018			12/19/2018 18:50	Megan Treadwell	2049409
	12/18/2018			12/19/2018 19:06	Megan Treadwell	2049410
	12/18/2018			12/19/2018 19:19	Megan Treadwell	2049414