

Chemical Analysis Report

CEN-DIST-2018-09-26-01

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

Event Description: **Wolf / Crab / Little(Bull)**

Request ID: **RQ-2018-09-24-49**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

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Date Certified: 19-OCT-2018 11:08



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: 09/25/2018 10:30

Field ID: G3CE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028260	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P352393	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P352628	
		Sulfate	2.3		mg SO4/L	P352631	
	SM 2120 B	Color (true)	220		PCU	P352317	
	SM 2320 B-97	Total Alkalinity	37		mg CaCO3/L	P352645	
	SM 2540 C-97	TDS	101		mg/L	P352741	
	SM 2540 D-97	TSS	2	I	mg/L	P352592	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P352650	
2028261	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P352716	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P352401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.096		mg N/L	P352489	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P352376	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P352429	
2028262	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.083		mg P/L	P352314	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

**Sample Location: CRABGRASS CREEK @ 250M SOUTH OF
 HIGHWAY 192 BRIDGE (3073)**

Collection Date/Time: 09/25/2018 11:49

Field ID: G3CE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028263	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P352393	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P352628	
		Sulfate	1.6		mg SO4/L	P352631	
	SM 2120 B	Color (true)	320		PCU	P352317	
	SM 2320 B-97	Total Alkalinity	45		mg CaCO3/L	P352645	
	SM 2540 C-97	TDS	125	A	mg/L	P352742	
	SM 2540 D-97	TSS	3	IA	mg/L	P352593	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P352650	
2028264	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P352716	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P352587	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P352490	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P352376	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P352429	
2028265	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P352314	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BULL CREEK @ UPSTREAM OF 441 BRIDGE (3100)

Collection Date/Time: 09/25/2018 12:27

Field ID: G3CE0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2028257	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P352393	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P352628	
		Sulfate	0.98		mg SO4/L	P352631	
	SM 2120 B	Color (true)	370		PCU	P352317	
	SM 2320 B-97	Total Alkalinity	1.2	I	mg CaCO3/L	P352645	
	SM 2540 C-97	TDS	103		mg/L	P352741	
	SM 2540 D-97	TSS	4	I	mg/L	P352592	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P352650	
2028258	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P352716	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P352401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.098		mg N/L	P352489	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P352376	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P352429	
2028259	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.23		mg P/L	P352314	
2028283	EPA 8321B	2,4-D	0.0020	U	ug/L	P352307	
		Bentazon	8.0E-04	U	ug/L	P352307	MS
		MCP	0.0020	U	ug/L	P352307	
		Triclopyr**	0.0040	U	ug/L	P352307	
		Imidacloprid	0.0020	U	ug/L	P352307	
		Diuron	0.0020	U	ug/L	P352307	
		Pyraclostrobin**	0.0020	U	ug/L	P352307	
		Primidone**	0.0040	U	ug/L	P352307	
		Linuron	0.0040	U	ug/L	P352307	
		Acetaminophen**	0.0080	U	ug/L	P352307	
		Fenuron	0.016	U	ug/L	P352307	
		Imazapyr**	0.0040	U	ug/L	P352307	
		Carbamazepine**	8.0E-04	U	ug/L	P352307	
		Fluridone**	4.0E-04	U	ug/L	P352307	
		Hydrocodone**	8.0E-04	U	ug/L	P352307	
		Naproxen**	0.0080	U	ug/L	P352307	
		Ibuprofen**	0.020	U	ug/L	P352307	
		Sucralose**	0.010	U	ug/L	P352201	
		Acesulfame K**	0.10	U	ug/L	P352201	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 8321B: MS accuracy for imazapyr and imidacloprid could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352393

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352628

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352631

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352716

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352401

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352587

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352489

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352490

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352376

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352314

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

Reference Method: EPA 8321B
Batch ID: P352201

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

Reference Method: EPA 8321B
Batch ID: P352307

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: SM 2120 B
Batch ID: P352317

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P352645

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

Reference Method: SM 2540 C-97
Batch ID: P352741

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P352742

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352592

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352593

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P352650

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P352429

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: P352628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352631

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352401

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352489

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352490

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352376

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: P352314

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P352201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	76.8		P	40 - 150
Sucralose	107		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P352307

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	96.7		P	40 - 150
Acetaminophen	87.4		P	30 - 150
Bentazon	86.5		P	30 - 150
Carbamazepine	79.3		P	40 - 150
Diuron	69.4		P	40 - 150
Fenuron	98.8		P	40 - 150
Fluridone	98.5		P	40 - 150
Hydrocodone	105		P	40 - 150
Ibuprofen	99.6		P	40 - 150
Imazapyr	69.5		P	40 - 150
Imidacloprid	86.1		P	40 - 160
Linuron	68.1		P	40 - 150
MCPP	95.8		P	40 - 150
Naproxen	86.1		P	40 - 150
Primidone	84.9		P	40 - 150
Pyraclostrobin	85.1		P	40 - 150
Triclopyr	93.6		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P352317

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.7		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P352645

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

Reference Method: SM 4500 F-C-97
Batch ID: P352650

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352429

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028248	Chloride	97.3		P	90 - 110
2028432	Chloride	94.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352631

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028248	Sulfate	95.4		P	90 - 110
2028432	Sulfate	96.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028252	Ammonia-N	99.1	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028251	Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028312	Kjeldahl Nitrogen	103	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028232	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028306	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028243	Total-P	97.0	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028313	O-Phosphate-P	97.5	98.6	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P352201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028139	Acesulfame K	78.4	74.1	P/P	40 - 150
2028139	Sucralose	105	103	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P352307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028285	2,4-D	110	98.3	P/P	40 - 150
2028285	Acetaminophen	82.1	86.8	P/P	30 - 150
2028285	Bentazon	15.1	15.3	F/F	30 - 150
2028285	Carbamazepine	64.3	67.4	P/P	40 - 150
2028285	Diuron	57.1	56.7	P/P	40 - 150
2028285	Fenuron	88.0	80.5	P/P	40 - 150
2028285	Fluridone	101	108	P/P	40 - 150
2028285	Hydrocodone	112	112	P/P	40 - 150
2028285	Ibuprofen	77.7	74.8	P/P	40 - 150
2028285	Linuron	56.4	61.6	P/P	40 - 150
2028285	MCP	116	111	P/P	40 - 150
2028285	Naproxen	74.9	76.6	P/P	40 - 150
2028285	Primidone	97.6	92.3	P/P	40 - 150
2028285	Pyraclostrobin	87.1	81.0	P/P	40 - 150
2028285	Triclopyr	118	109	P/P	40 - 150

Reference Method: SM 5310 B-00
Batch ID: P352429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2028252	Organic Carbon	95.5	93.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P352393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028248	Turbidity	1.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028248	Chloride	0.103	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028248	Sulfate	2.62	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028252	Ammonia-N	2.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028251	Kjeldahl Nitrogen	1.36	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P352587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028312	Kjeldahl Nitrogen	2.61	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028232	NO2NO3-N	0.332	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028306	NO2NO3-N	0.499	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P352376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028243	Total-P	6.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P352314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028313	O-Phosphate-P	1.12	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P352201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028139	Acesulfame K	5.58	Spike	P	0 - 30
2028139	Sucralose	1.19	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P352307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028285	2,4-D	9.06	Spike	P	0 - 30
2028285	Acetaminophen	5.53	Spike	P	0 - 30
2028285	Bentazon	6.07	Spike	P	0 - 30
2028285	Carbamazepine	4.48	Spike	P	0 - 30
2028285	Diuron	0.802	Spike	P	0 - 30
2028285	Fenuron	8.83	Spike	P	0 - 30
2028285	Fluridone	6.68	Spike	P	0 - 30
2028285	Hydrocodone	0.739	Spike	P	0 - 30
2028285	Ibuprofen	3.82	Spike	P	0 - 30
2028285	Imazapyr	3.58	Spike	P	0 - 30
2028285	Imidacloprid	5.21	Spike	P	0 - 30
2028285	Linuron	8.86	Spike	P	0 - 30
2028285	MCPP	4.36	Spike	P	0 - 30
2028285	Naproxen	2.35	Spike	P	0 - 30
2028285	Primidone	5.08	Spike	P	0 - 30
2028285	Pyraclostrobin	7.29	Spike	P	0 - 30
2028285	Triclopyr	7.62	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P352317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028245	Color (true)	0.0615	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P352645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028706	Total Alkalinity	0.0871	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P352741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028248	TDS	5.85	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P352742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028263	TDS	4.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P352650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028706	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P352429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2028252	Organic Carbon	1.37	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: 2028283
Field Sample ID: G3CE0009

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	60.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	62.6	P	30 - 160
EPA 8321B	Diuron-d6	46.6	P	30 - 160
EPA 8321B	Endothall-d6	117	P	40 - 160
EPA 8321B	Ibuprofen-d3	61.6	P	30 - 160
EPA 8321B	Primidone-d5	67.0	P	30 - 160
EPA 8321B	Sucralose-d6	138	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A86732

Included Lab Sample IDs: 2028259, 2028262, 2028265

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	98.3	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A86733

Included Lab Sample IDs: 2028257, 2028260, 2028263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	97.7	P/P	90 - 115
Color (true)	97.7	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86757

Included Lab Sample IDs: 2028257, 2028260, 2028263

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

Reference Method: SM 5310 B-00

Run ID: A86766

Included Lab Sample IDs: 2028258, 2028261, 2028264

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.0	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86773

Included Lab Sample IDs: 2028258, 2028261, 2028264

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86790

Included Lab Sample IDs: 2028258, 2028261, 2028264

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86794

Included Lab Sample IDs: 2028258, 2028261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	99.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A86795

Included Lab Sample IDs: 2028283

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.8	110	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A86798
Included Lab Sample IDs: 2028283

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	81.6	69.9	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A86818
Included Lab Sample IDs: 2028283

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	97.4	106	P/P	50 - 150
Acetaminophen	97.9	89.1	P/P	60 - 160
Bentazon	95.5	98.8	P/P	50 - 160
Carbamazepine	102	94.0	P/P	60 - 160
Diuron	94.7	96.5	P/P	60 - 150
Fenuron	103	96.5	P/P	60 - 150
Fluridone	129	127	P/P	60 - 160
Hydrocodone	114	113	P/P	60 - 150
Ibuprofen	86.9	109	P/P	50 - 160
Imazapyr	83.1	87.5	P/P	50 - 150
Imidacloprid	102	90.1	P/P	60 - 150
Linuron	94.2	94.9	P/P	60 - 150
MCPP	97.2	97.0	P/P	50 - 150
Naproxen	102	93.6	P/P	50 - 160
Primidone	90.8	80.2	P/P	60 - 150
Pyraclostrobin	118	117	P/P	60 - 150
Triclopyr	99.1	96.5	P/P	50 - 160

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A86839
Included Lab Sample IDs: 2028257, 2028260, 2028263

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

Reference Method: SM 2320 B-97
Run ID: A86860
Included Lab Sample IDs: 2028257, 2028260, 2028263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A86860
Included Lab Sample IDs: 2028257, 2028260, 2028263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	99.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86893

Included Lab Sample IDs: 2028258, 2028261, 2028264

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86944

Included Lab Sample IDs: 2028264

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	94.0	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	SMP
EPA 180.1 Rev. 2.0	Turbidity					1.85
EPA 300.0 Rev. 2.1	Chloride	99.2	97.3	94.3		0.103
	Sulfate	97.1	95.4	96.2		2.62
EPA 350.1 Rev. 2.0	Ammonia-N	97.2	99.1	102		
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	106		2.05
	Kjeldahl Nitrogen	107	103	99.4		1.36
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	99.5	100		2.61
	NO ₂ NO ₃ -N	99.5	100	100		0.332
EPA 365.1 Rev. 2.0	Total-P	101	97.0	104		0.499
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.5	98.6		6.51
EPA 8321B	2,4-D	96.7	98.3	110		1.12
	Acesulfame K	76.8	78.4	74.1		9.06
	Acetaminophen	87.4	82.1	86.8		5.58
	Bentazon	86.5	15.1	15.3		5.53
	Carbamazepine	79.3	64.3	67.4		6.07
	Diuron	69.4	57.1	56.7		4.48
	Fenuron	98.8	88.0	80.5		0.802
	Fluridone	98.5	101	108		8.83
	Hydrocodone	105	112	112		6.68
	Ibuprofen	99.6	74.8	77.7		0.739
	Imazapyr	69.5				3.82
	Imidacloprid	86.1				3.58
	Linuron	68.1	56.4	61.6		5.21
	MCP	95.8	111	116		8.86
	Naproxen	86.1	76.6	74.9		4.36
	Primidone	84.9	97.6	92.3		2.35
	Pyraclostrobin	85.1	87.1	81.0		5.08
	Sucralose	107	105	103		7.29
	Triclopyr	93.6	109	118		1.19
SM 2120 B	Color (true)	97.7				7.62
SM 2320 B-97	Total Alkalinity	103				0.0615
SM 2540 C-97	TDS					0.0871
	TDS					5.85
SM 4500 F-C-97	Fluoride	96.6				4.80
SM 5310 B-00	Organic Carbon	98.4	95.5	93.7		0.0

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2028257, 2028260, 2028263
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2028257, 2028260, 2028263
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2028257, 2028260, 2028263
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2028258, 2028261, 2028264
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2028258, 2028261, 2028264
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2028258, 2028261, 2028264
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2028258, 2028261, 2028264
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2028259, 2028262, 2028265

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2028283
SM 2120 B / E31780	True Color measured at 450 nm	2028257, 2028260, 2028263
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2028257, 2028260, 2028263
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2028257, 2028260, 2028263
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2028257, 2028260, 2028263
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2028257, 2028260, 2028263
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2028258, 2028261, 2028264

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	09/26/2018			09/26/2018 16:41	Megan Treadwell	2028257, 2028260, 2028263
EPA 300.0 Rev. 2.1	09/26/2018			10/02/2018 18:39	Lipi Saha	2028257
	09/26/2018			10/02/2018 18:51	Lipi Saha	2028260
	09/26/2018			10/02/2018 19:27	Lipi Saha	2028263
EPA 350.1 Rev. 2.0	09/26/2018			10/02/2018 12:24	Ping Hua	2028258
	09/26/2018			10/02/2018 12:26	Ping Hua	2028261
	09/26/2018			10/02/2018 12:27	Ping Hua	2028264
EPA 351.2 Rev. 2.0	09/26/2018	09/27/2018 15:15	Adrian Shelby	09/28/2018 15:13	Joseph Suarez	2028258
	09/26/2018	09/27/2018 15:15	Adrian Shelby	09/28/2018 15:14	Joseph Suarez	2028261
	09/26/2018	10/02/2018 15:30	Adrian Shelby	10/05/2018 13:02	Joseph Suarez	2028264
EPA 353.2 Rev. 2.0	09/26/2018			09/28/2018 13:25	Lauren Bottorf	2028258
	09/26/2018			09/28/2018 13:26	Lauren Bottorf	2028261
	09/26/2018			09/28/2018 13:40	Lauren Bottorf	2028264
EPA 365.1 Rev. 2.0	09/26/2018	09/27/2018 11:30	Sima Feizi	09/28/2018 09:33	Beverly Y. Sanders	2028258
	09/26/2018	09/27/2018 11:30	Sima Feizi	09/28/2018 09:34	Beverly Y. Sanders	2028261
	09/26/2018	09/27/2018 11:30	Sima Feizi	09/28/2018 09:35	Beverly Y. Sanders	2028264
EPA 365.1 Rev. 2.0 dissolved	09/26/2018			09/26/2018 15:39	Julia Storbeck	2028259
	09/26/2018			09/26/2018 15:40	Julia Storbeck	2028262
	09/26/2018			09/26/2018 15:41	Julia Storbeck	2028265
EPA 8321B	09/26/2018	09/28/2018 08:30	Mohammad Ghaffari	09/28/2018 16:44	Mohammad Ghaffari	2028283
	09/26/2018	09/28/2018 08:30	Mohammad Ghaffari	09/29/2018 18:12	Mohammad Ghaffari	2028283
	09/26/2018	09/28/2018 09:00	Hoor Shaik	09/29/2018 15:24	Juyoung Kim	2028283
	09/26/2018	09/28/2018 09:00	Hoor Shaik	10/02/2018 02:15	Juyoung Kim	2028283
SM 2120 B	09/26/2018			09/26/2018 16:03	DeAsia Armster	2028257
	09/26/2018			09/26/2018 16:04	DeAsia Armster	2028260
	09/26/2018			09/26/2018 16:08	DeAsia Armster	2028263
SM 2320 B-97	09/26/2018			10/02/2018 19:36	Dale L. Simmons	2028257
	09/26/2018			10/02/2018 19:47	Dale L. Simmons	2028260
	09/26/2018			10/02/2018 19:58	Dale L. Simmons	2028263
SM 2540 C-97	09/26/2018			09/28/2018 15:48	Yijie Li	2028257, 2028260, 2028263
SM 2540 D-97	09/26/2018			09/28/2018 15:48	Yijie Li	2028257, 2028260, 2028263
SM 4500 F-C-97	09/26/2018			10/02/2018 19:36	Dale L. Simmons	2028257
	09/26/2018			10/02/2018 19:47	Dale L. Simmons	2028260
	09/26/2018			10/02/2018 19:58	Dale L. Simmons	2028263
SM 5310 B-00	09/26/2018			09/27/2018 23:36	Megan Treadwell	2028258
	09/26/2018			09/27/2018 23:50	Megan Treadwell	2028261
	09/26/2018			09/28/2018 00:04	Megan Treadwell	2028264