

Chemical Analysis Report

SO-DIST-2019-01-31-02

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

Event Description: **2019 SMP : Canals**

Request ID: **RQ-2019-01-28-55**

Customer: **SO-DIST**

Project ID: **SMP**

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Date Certified: 15-FEB-2019 11:45



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: NorthCreek@OaksCreekCt

Collection Date/Time: 01/30/2019 10:05

Field ID: G3SD0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2058493	EPA 8321B	2,4-D	0.030		ug/L	P358107	
		Sucralose**	0.40		ug/L	P358147	
		Bentazon	0.016		ug/L	P358107	
		MCP	0.0020	U	ug/L	P358107	
		Triclopyr**	0.0040	U	ug/L	P358107	
		Imidacloprid	0.058		ug/L	P358107	MS
		Diuron	0.0020	U	ug/L	P358107	
		Pyraclostrobin**	0.0020	U	ug/L	P358107	
		Primidone**	0.0040	U	ug/L	P358107	
		Linuron	0.0040	U	ug/L	P358107	
		Acetaminophen**	0.0080	U	ug/L	P358107	
		Fenuron	0.016	U	ug/L	P358107	
		Imazapyr**	0.31		ug/L	P358107	
		Carbamazepine**	8.0E-04	U	ug/L	P358107	
		Fluridone**	0.022		ug/L	P358107	
		Hydrocodone**	0.0020	U	ug/L	P358107	
		Naproxen**	0.0080	U	ug/L	P358107	
		Ibuprofen**	0.020	U	ug/L	P358107	
		Glyphosate**	0.12	I	ug/L	P358147	
		AMPA**	0.14	I	ug/L	P358147	
		Endothall**	0.25	U	ug/L	P358147	
		Glufosinate**	0.10	U	ug/L	P358147	
		Acesulfame K**	0.10	U	ug/L	P358147	

Ref. Method and Comment:

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

Sample Location: NorthCreek(Tidal)@41

Collection Date/Time: 01/30/2019 10:45

Field ID: G3SD0089

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2058495	EPA 8321B	2,4-D	0.10		ug/L	P358107	
		Sucralose**	0.65		ug/L	P358147	
		Bentazon	0.010		ug/L	P358107	
		MCP	0.0063	I	ug/L	P358107	
		Triclopyr**	0.0040	U	ug/L	P358107	
		Imidacloprid	0.13		ug/L	P358107	MS
		Diuron	0.0025	I	ug/L	P358107	
		Pyraclostrobin**	0.0020	U	ug/L	P358107	
		Primidone**	0.0074	I	ug/L	P358107	
		Linuron	0.0040	U	ug/L	P358107	
		Acetaminophen**	0.0080	U	ug/L	P358107	
		Fenuron	0.016	U	ug/L	P358107	
		Imazapyr**	0.17		ug/L	P358107	
		Carbamazepine**	0.0012	I	ug/L	P358107	
		Fluridone**	0.055		ug/L	P358107	
		Hydrocodone**	0.0020	U	ug/L	P358107	
		Naproxen**	0.0080	U	ug/L	P358107	
		Ibuprofen**	0.020	U	ug/L	P358107	
		Glyphosate**	0.91	J	ug/L	P358147	SUR
		AMPA**	0.52	J	ug/L	P358147	SUR
		Endothall**	0.25	U	ug/L	P358147	
		Glufosinate**	0.10	UJ	ug/L	P358147	SUR
		Acesulfame K**	0.10	U	ug/L	P358147	

Ref. Method and Comment:

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

EPA 8321B: Results confirmed in re-extraction.

Sample Location: Walker Creek @32ndSt

Collection Date/Time: 01/30/2019 11:40

Field ID: G3SD0094

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2058494	EPA 8321B	2,4-D	0.0043	I	ug/L	P358107	
		Sucralose**	0.46		ug/L	P358147	
		Bentazon	0.025		ug/L	P358107	
		MCP	0.0084		ug/L	P358107	
		Triclopyr**	0.0040	U	ug/L	P358107	
		Imidacloprid	0.016		ug/L	P358107	MS
		Diuron	0.013		ug/L	P358107	
		Pyraclostrobin**	0.0020	U	ug/L	P358107	
		Primidone**	0.0067	I	ug/L	P358107	
		Linuron	0.0040	U	ug/L	P358107	
		Acetaminophen**	0.0080	U	ug/L	P358107	
		Fenuron	0.016	U	ug/L	P358107	
		Imazapyr**	1.5		ug/L	P358107	
		Carbamazepine**	0.0028	I	ug/L	P358107	
		Fluridone**	0.010		ug/L	P358107	
		Hydrocodone**	0.0020	U	ug/L	P358107	
		Naproxen**	0.0080	U	ug/L	P358107	
		Ibuprofen**	0.020	U	ug/L	P358107	
		Glyphosate**	1.6		ug/L	P358147	
		AMPA**	0.44		ug/L	P358147	
		Endothall**	0.25	U	ug/L	P358147	
		Glufosinate**	0.10	U	ug/L	P358147	
		Acesulfame K**	0.17	I	ug/L	P358147	

Ref. Method and Comment:

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

Sample Location: PhillippeCreek@Proctor

Collection Date/Time: 01/30/2019 12:40

Field ID: G3SD0091

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2058468	EPA 180.1 Rev. 2.0	Turbidity	13	A	NTU	P358138	
	EPA 300.0 Rev. 2.1	Chloride	51		mg Cl/L	P358483	
		Sulfate	100		mg SO4/L	P358484	
	SM 2120 B	Color (true)	83	A	PCU	P358132	
	SM 2320 B-97	Total Alkalinity	140		mg CaCO3/L	P358651	
	SM 2540 C-97	TDS	408		mg/L	P358380	
	SM 2540 D-97	TSS	10	I	mg/L	P358290	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P358655	
2058470	EPA 350.1 Rev. 2.0	Ammonia-N	0.44		mg N/L	P358568	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P358278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P358304	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P358247	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P358328	
2058472	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P358136	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PhillippeCreek@Proctor

Collection Date/Time: 01/30/2019 12:50

Field ID: BLANK_01302019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2058469	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P358138	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P358483	
		Sulfate	0.20	U	mg SO4/L	P358484	
	SM 2120 B	Color (true)	2.5	U	PCU	P358132	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P358651	
	SM 2540 C-97	TDS	15	U	mg/L	P358380	
	SM 2540 D-97	TSS	2	U	mg/L	P358290	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P358655	
2058471	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P358471	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P358278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P358304	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P358247	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P358328	
2058473	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358136	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358138

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358483

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358484

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358471

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358568

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358304

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358247

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358136

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P358107

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	8.0E-04	U	ug/L
Hydrocodone	0.0020	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: P358147

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P358132

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P358651

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

Reference Method: SM 2540 C-97
Batch ID: P358380

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358290

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P358655

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358328

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: P358483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358484

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358471

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: P358568

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358278

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: P358304

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358247

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P358107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	76.9		P	40 - 150
Acetaminophen	85.2		P	30 - 150
Bentazon	94.7		P	30 - 150
Carbamazepine	90.6		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P358107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	76.1		P	40 - 150
Fenuron	105		P	40 - 150
Fluridone	93.0		P	40 - 150
Hydrocodone	87.6		P	40 - 150
Ibuprofen	87.0		P	40 - 150
Imazapyr	87.2		P	40 - 150
Imidacloprid	87.1		P	40 - 160
Linuron	74.1		P	40 - 150
MCPP	91.2		P	40 - 150
Naproxen	70.7		P	40 - 150
Primidone	84.8		P	40 - 150
Pyraclostrobin	71.0		P	40 - 150
Triclopyr	65.5		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P358147

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	111		P	40 - 150
AMPA	102		P	40 - 150
Endothall	87.7		P	40 - 150
Glufosinate	69.8		P	40 - 150
Glyphosate	86.0		P	40 - 140
Sucralose	80.4		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P358132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P358651

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

Reference Method: SM 4500 F-C-97
Batch ID: P358655

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P358483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058077	Chloride	98.8		P	90 - 110
2058415	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P358484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058077	Sulfate	99.3		P	90 - 110
2058415	Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P358471

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058433	Ammonia-N	98.0	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P358568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058538	Ammonia-N	98.6	95.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P358304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058470	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058470	Total-P	99.3	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058611	O-Phosphate-P	95.2	97.8	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P358107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058259	2,4-D	106	116	P/P	40 - 150
2058259	Acetaminophen	115	110	P/P	30 - 150
2058259	Carbamazepine	85.0	83.8	P/P	40 - 150
2058259	Diuron	69.6	66.5	P/P	40 - 150
2058259	Fenuron	100	87.9	P/P	40 - 150
2058259	Fluridone	76.9	77.7	P/P	40 - 150
2058259	Hydrocodone	108	99.5	P/P	40 - 150
2058259	Ibuprofen	94.2	87.7	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P358107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058259	Imazapyr	84.9	84.8	P/P	40 - 150
2058259	Imidacloprid	173	159	F/P	40 - 160
2058259	Linuron	71.5	67.3	P/P	40 - 150
2058259	MCP	130	138	P/P	40 - 150
2058259	Naproxen	75.2	81.3	P/P	40 - 150
2058259	Primidone	99.3	91.2	P/P	40 - 150
2058259	Pyraclostrobin	77.6	72.5	P/P	40 - 150
2058259	Triclopyr	84.8	96.9	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P358147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058244	Acesulfame K	74.3	73.1	P/P	40 - 150
2058244	AMPA	141	126	P/P	40 - 150
2058244	Endothall	94.0	97.1	P/P	40 - 150
2058244	Glufosinate	121	102	P/P	40 - 150
2058244	Glyphosate	136	111	P/P	40 - 140
2058244	Sucralose	91.5	101	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P358655

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059451	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058470	Organic Carbon	94.6	97.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058468	Turbidity	6.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058077	Chloride	0.127	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058077	Sulfate	0.316	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358471

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058433	Ammonia-N	4.26	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058538	Ammonia-N	2.67	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058537	Kjeldahl Nitrogen	5.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058470	NO2NO3-N	0.585	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058470	Total-P	1.18	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058611	O-Phosphate-P	2.69	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P358107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058259	2,4-D	8.71	Spike	P	0 - 30
2058259	Acetaminophen	4.43	Spike	P	0 - 30
2058259	Bentazon	2.13	Spike	P	0 - 30
2058259	Carbamazepine	1.46	Spike	P	0 - 30
2058259	Diuron	4.50	Spike	P	0 - 30
2058259	Fenuron	13.0	Spike	P	0 - 30
2058259	Fluridone	0.251	Spike	P	0 - 30
2058259	Hydrocodone	7.75	Spike	P	0 - 30
2058259	Ibuprofen	7.11	Spike	P	0 - 30
2058259	Imazapyr	0.0143	Spike	P	0 - 30
2058259	Imidacloprid	7.59	Spike	P	0 - 30
2058259	Linuron	5.94	Spike	P	0 - 30
2058259	MCP	5.87	Spike	P	0 - 30
2058259	Naproxen	7.71	Spike	P	0 - 30
2058259	Primidone	8.49	Spike	P	0 - 30
2058259	Pyraclostrobin	6.85	Spike	P	0 - 30
2058259	Triclopyr	13.3	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P358147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058244	Acesulfame K	1.69	Spike	P	0 - 30
2058244	AMPA	10.5	Spike	P	0 - 30
2058244	Endothall	3.19	Spike	P	0 - 30
2058244	Glufosinate	16.9	Spike	P	0 - 30
2058244	Glyphosate	20.3	Spike	P	0 - 30
2058244	Sucralose	10.2	Spike	P	0 - 30

Reference Method: SM 2120 B
 Batch ID: P358132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058468	Color (true)	0.0832	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P358651

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059451	Total Alkalinity	0.465	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P358380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058427	TDS	0.385	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P358655

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059451	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P358328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058470	Organic Carbon	1.85	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: 2058493
Field Sample ID: G3SD0064

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	80.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	89.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	70.9	P	30 - 160
EPA 8321B	Diuron-d6	62.7	P	30 - 160
EPA 8321B	Endothall-d6	103	P	40 - 160
EPA 8321B	Endothall-d6	103	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	40.2	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	40.2	P	40 - 160
EPA 8321B	Ibuprofen-d3	76.0	P	30 - 160
EPA 8321B	Primidone-d5	75.8	P	30 - 160
EPA 8321B	Sucralose-d6	88.5	P	40 - 160
EPA 8321B	Sucralose-d6	88.5	P	40 - 160

Lab Sample ID: 2058494
Field Sample ID: G3SD0094

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	110	P	30 - 160
EPA 8321B	Acetaminophen-d4	117	P	30 - 160
EPA 8321B	Carbamazepine-d10	80.4	P	30 - 160
EPA 8321B	Diuron-d6	73.1	P	30 - 160
EPA 8321B	Endothall-d6	95.5	P	40 - 160
EPA 8321B	Endothall-d6	95.5	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	69.9	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	69.9	P	40 - 160
EPA 8321B	Ibuprofen-d3	107	P	30 - 160
EPA 8321B	Primidone-d5	99.1	P	30 - 160
EPA 8321B	Sucralose-d6	88.2	P	40 - 160
EPA 8321B	Sucralose-d6	88.2	P	40 - 160

Lab Sample ID: 2058495
Field Sample ID: G3SD0089

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	95.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.5	P	30 - 160
EPA 8321B	Diuron-d6	67.7	P	30 - 160
EPA 8321B	Endothall-d6	97.4	P	40 - 160
EPA 8321B	Endothall-d6	97.4	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	33.6	F	40 - 160
EPA 8321B	Glyphosate 13C 15N	33.6	F	40 - 160
EPA 8321B	Ibuprofen-d3	91.9	P	30 - 160
EPA 8321B	Primidone-d5	88.8	P	30 - 160
EPA 8321B	Sucralose-d6	84.0	P	40 - 160
EPA 8321B	Sucralose-d6	84.0	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A89126

Included Lab Sample IDs: 2058468, 2058469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89127

Included Lab Sample IDs: 2058472, 2058473

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89128

Included Lab Sample IDs: 2058468, 2058469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89167

Included Lab Sample IDs: 2058470, 2058471

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

Reference Method: EPA 8321B

Run ID: A89181

Included Lab Sample IDs: 2058493, 2058494, 2058495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	135	130	P/P	60 - 160
Glufosinate	93.9	88.0	P/P	60 - 160
Glyphosate	101	101	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89186

Included Lab Sample IDs: 2058470, 2058471

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	107	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89190

Included Lab Sample IDs: 2058493, 2058494, 2058495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	97.6	99.9	P/P	60 - 160
Endothall	80.8	77.8	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A89193

Included Lab Sample IDs: 2058470, 2058471

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.5	98.2	P/P	90 - 110
Organic Carbon	97.6	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89197

Included Lab Sample IDs: 2058470

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89205

Included Lab Sample IDs: 2058468, 2058469

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

Reference Method: EPA 8321B

Run ID: A89207

Included Lab Sample IDs: 2058493, 2058494, 2058495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	81.1	77.0	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89209

Included Lab Sample IDs: 2058471

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89234

Included Lab Sample IDs: 2058471

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.6	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89276

Included Lab Sample IDs: 2058470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89286

Included Lab Sample IDs: 2058493, 2058494, 2058495

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

Reference Method: EPA 8321B

Run ID: A89286

Included Lab Sample IDs: 2058493, 2058494, 2058495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.0	90.9	P/P	50 - 150
Acetaminophen	115	113	P/P	60 - 160
Bentazon	120	115	P/P	50 - 160
Carbamazepine	102	102	P/P	60 - 150
Diuron	103	100	P/P	60 - 150
Fenuron	105	104	P/P	60 - 150
Fluridone	105	107	P/P	60 - 160
Hydrocodone	97.7	104	P/P	60 - 150
Ibuprofen	112	90.3	P/P	50 - 160
Imazapyr	104	81.8	P/P	50 - 150
Imazapyr	94.9	104	P/P	50 - 150
Imidacloprid	98.8	97.4	P/P	60 - 150
Linuron	101	98.4	P/P	60 - 150
MCPP	86.5	87.9	P/P	50 - 150
Naproxen	100	85.7	P/P	50 - 160
Primidone	99.6	96.7	P/P	60 - 150
Pyraclostrobin	101	99.8	P/P	60 - 150
Triclopyr	91.8	86.9	P/P	50 - 150

Reference Method: SM 2320 B-97

Run ID: A89314

Included Lab Sample IDs: 2058468, 2058469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89314

Included Lab Sample IDs: 2058468, 2058469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					6.25	
EPA 300.0 Rev. 2.1	Chloride	98.9	98.8	98.5		0.127	
	Sulfate	100	99.3	98.3		0.316	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	98.0	105			4.26
	Ammonia-N	100	98.6	95.2			2.67
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					5.44
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	99.5			0.585
EPA 365.1 Rev. 2.0	Total-P	104	99.3	97.6			1.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	95.2	97.8			2.69
EPA 8321B	2,4-D	76.9	106	116			8.71
	Acesulfame K	111	74.3	73.1			1.69
	Acetaminophen	85.2	115	110			4.43
	AMPA	102	141	126			10.5
	Bentazon	94.7					2.13
	Carbamazepine	90.6	85.0	83.8			1.46
	Diuron	76.1	69.6	66.5			4.50
	Endothall	87.7	94.0	97.1			3.19
	Fenuron	105	100	87.9			13.0
	Fluridone	93.0	76.9	77.7			0.251
	Glufosinate	69.8	121	102			16.9
	Glyphosate	86.0	136	111			20.3
	Hydrocodone	87.6	108	99.5			7.75
	Ibuprofen	87.0	94.2	87.7			7.11
	Imazapyr	87.2	84.9	84.8			0.0143
	Imidacloprid	87.1	173	159			7.59
	Linuron	74.1	71.5	67.3			5.94
	MCPP	91.2	130	138			5.87
	Naproxen	70.7	75.2	81.3			7.71
	Primidone	84.8	99.3	91.2			8.49
	Pyraclostrobin	71.0	77.6	72.5			6.85
	Sucralose	80.4	91.5	101			10.2
	Triclopyr	65.5	84.8	96.9			13.3
SM 2120 B	Color (true)	99.4				0.0832	
SM 2320 B-97	Total Alkalinity	102				0.465	
SM 2540 C-97	TDS					0.385	
SM 4500 F-C-97	Fluoride	96.8	97.4	97.4			0.0
SM 5310 B-00	Organic Carbon	101	94.6	97.9			1.85

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2058468, 2058469
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2058468, 2058469
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2058468, 2058469
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2058470, 2058471
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2058470, 2058471
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2058470, 2058471

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2058470, 2058471
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2058472, 2058473
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2058493, 2058494, 2058495
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2058493, 2058494, 2058495
SM 2120 B / E31780	True Color measured at 450 nm	2058468, 2058469
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2058468, 2058469
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2058468, 2058469
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2058468, 2058469
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2058468, 2058469
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2058470, 2058471

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	01/31/2019			01/31/2019 16:32	Adrian Shelby	2058468, 2058469
EPA 300.0 Rev. 2.1	01/31/2019			02/06/2019 20:59	Lipi Saha	2058468
	01/31/2019			02/06/2019 21:14	Lipi Saha	2058469
EPA 350.1 Rev. 2.0	01/31/2019			02/04/2019 13:17	Ping Hua	2058471
	01/31/2019			02/07/2019 13:21	Ping Hua	2058470
EPA 351.2 Rev. 2.0	01/31/2019	02/04/2019 12:25	Adrian Shelby	02/05/2019 10:32	Joseph Suarez	2058470
	01/31/2019	02/04/2019 12:25	Adrian Shelby	02/05/2019 10:33	Joseph Suarez	2058471
EPA 353.2 Rev. 2.0	01/31/2019			02/04/2019 11:11	Beverly Y. Sanders	2058470
	01/31/2019			02/04/2019 11:17	Beverly Y. Sanders	2058471
EPA 365.1 Rev. 2.0	01/31/2019	02/04/2019 13:15	Sima Feizi	02/05/2019 12:27	Rosalyn Ballman	2058470
	01/31/2019	02/04/2019 13:15	Sima Feizi	02/05/2019 16:36	Rosalyn Ballman	2058471
EPA 365.1 Rev. 2.0 dissolved	01/31/2019			01/31/2019 15:44	Jhamieka S. Greenwood	2058473
	01/31/2019			01/31/2019 15:48	Jhamieka S. Greenwood	2058472
EPA 8321B	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/02/2019 14:16	Rebecca Ware	2058493
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/02/2019 14:27	Rebecca Ware	2058494
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/02/2019 14:38	Rebecca Ware	2058495
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/03/2019 08:28	Rebecca Ware	2058493
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/03/2019 08:42	Rebecca Ware	2058494
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/03/2019 08:56	Rebecca Ware	2058495
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/05/2019 01:37	Rebecca Ware	2058493
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/05/2019 01:51	Rebecca Ware	2058494
	01/31/2019	02/01/2019 14:30	Rebecca Ware	02/05/2019 02:05	Rebecca Ware	2058495
	01/31/2019	02/04/2019 10:00	Hoor Shaik	02/06/2019 08:09	Juyoung Kim	2058493
	01/31/2019	02/04/2019 10:00	Hoor Shaik	02/06/2019 08:44	Juyoung Kim	2058494
	01/31/2019	02/04/2019 10:00	Hoor Shaik	02/06/2019 09:18	Juyoung Kim	2058495
	01/31/2019	02/04/2019 10:00	Hoor Shaik	02/06/2019 13:20	Juyoung Kim	2058494
SM 2120 B	01/31/2019			01/31/2019 15:42	Julia Storbeck	2058468
	01/31/2019			01/31/2019 15:46	Julia Storbeck	2058469
SM 2320 B-97	01/31/2019			02/09/2019 09:20	Dale L. Simmons	2058468
	01/31/2019			02/09/2019 09:34	Dale L. Simmons	2058469
SM 2540 C-97	01/31/2019			02/01/2019 15:25	Mariam Hanna	2058468, 2058469
SM 2540 D-97	01/31/2019			02/01/2019 16:00	Mariam Hanna	2058468, 2058469
SM 4500 F-C-97	01/31/2019			02/09/2019 09:20	Dale L. Simmons	2058468
	01/31/2019			02/09/2019 09:34	Dale L. Simmons	2058469
SM 5310 B-00	01/31/2019			02/04/2019 19:55	Julia Storbeck	2058470
	01/31/2019			02/05/2019 00:58	Julia Storbeck	2058471