

Chemical Analysis Report

NW-DIST-2020-03-12-01

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

Event Description: **Eglin Run East**
Request ID: **RQ-2020-03-09-20**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 01-APR-2020 16:41



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: Shaw Still Branch upstream E College Blvd.

Collection Date/Time: 03/11/2020 10:50

Field ID: G3NW0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164811	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P380573	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P380935	
		Sulfate	15		mg SO4/L	P380937	
	SM 2120 B-2011	Color (true)	7.5		PCU	P380580	
	SM 2320 B-2011	Total Alkalinity	46		mg CaCO3/L	P381067	
	SM 2540 C-2011	TDS	115	A	mg/L	P381119	
	SM 2540 D-2011	TSS	2	UA	mg/L	P381187	
2164812	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381263	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P381039	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P380772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P381199	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P381142	
2164813	SM 5310 B-2011	Organic Carbon	1.8		mg C/L	P380752	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380568	
2164828	EPA 8321B	2,4-D	0.0020	U	ug/L	P380689	
		Acesulfame K**	0.10	U	ug/L	P380621	
		AMPA**	0.10	U	ug/L	P380621	
		Sucralose**	3.5		ug/L	P380621	
		Acetaminophen**	0.0080	U	ug/L	P380689	
		Acetamiprid**	0.0020	U	ug/L	P380689	
		Endothall**	0.25	U	ug/L	P380621	
		Glufosinate**	0.10	U	ug/L	P380621	
		Glyphosate**	0.10	U	ug/L	P380621	
		Afidopyropen**	0.0020	UJ	ug/L	P380689	
		Bentazon	8.0E-04	U	ug/L	P380689	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P380689	
		Carbamazepine**	8.1E-04	I	ug/L	P380689	
		Clothianidin**	0.0020	U	ug/L	P380689	
		Dinotefuran**	0.0043	I	ug/L	P380689	
		Diuron	0.0020	U	ug/L	P380689	
		Fenuron	0.016	U	ug/L	P380689	
		Fluridone**	8.0E-04	U	ug/L	P380689	
		Imazapyr**	0.0040	U	ug/L	P380689	
		Hydrocodone**	0.0020	U	ug/L	P380689	
		Ibuprofen**	0.020	U	ug/L	P380689	
		Imidacloprid	0.0020	U	ug/L	P380689	
		Linuron	0.0040	U	ug/L	P380689	
		Mandestrobin**	0.0020	UJ	ug/L	P380689	
		MCP	0.0020	U	ug/L	P380689	MS
		Naproxen**	0.0080	U	ug/L	P380689	
		Primidone**	0.0040	U	ug/L	P380689	
		Pyraclostrobin**	0.0020	U	ug/L	P380689	
		Thiamethoxam**	0.0020	U	ug/L	P380689	

Field ID: G3NW0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164828	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P380689	
		Triclopyr**	0.0040	U	ug/L	P380689	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 8321B: J - second source check standards for some analytes were not available for analysis.

Sample Location: Eagle Creek upstream of Hwy 20

Collection Date/Time: 03/11/2020 11:30

Field ID: G3NW0151

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2164814	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P380573	
	EPA 300.0 Rev. 2.1	Bromide	0.017	I	mg Br/L	P380678	
	SM 2320 B-2011	Total Alkalinity	0.81	I	mg CaCO3/L	P381067	
	SM 2540 D-2011	TSS	2	I	mg/L	P381187	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381263	
2164815	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P381039	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P380772	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P381199	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P381142	
	SM 5310 B-2011	Organic Carbon	5.3		mg C/L	P380752	
2164816	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P380568	

Ref. Method and Comment:

SM 2540 D-2011: 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: P380573

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380678

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380935

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381039

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380772

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381199

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381142

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

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: P380621

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: EPA 8321B
Batch ID: P380689

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	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
Mandestrobin	0.0020	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
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P380580

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P381067

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P381119

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381187

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P380752

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: P380678

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380935

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381039

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: P380772

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381199

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: P381142

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.3		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P380621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	79.0		P	40 - 150
AMPA	92.0		P	40 - 150
Endothall	126		P	40 - 150
Glufosinate	124		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P380621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	92.8		P	40 - 140
Sucralose	103		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P380689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	147		P	30 - 160
Acetaminophen	101		P	30 - 160
Acetamiprid	91.4		P	30 - 160
Afidopyropen	98.9		P	30 - 160
Bentazon	98.6		P	30 - 160
Benzovindiflupyr	88.9		P	30 - 160
Carbamazepine	124		P	30 - 160
Clothianidin	95.1		P	30 - 160
Dinotefuran	95.3		P	30 - 160
Diuron	96.5		P	30 - 160
Fenuron	96.2		P	30 - 160
Fluridone	101		P	30 - 160
Hydrocodone	106		P	30 - 160
Ibuprofen	93.3		P	30 - 160
Imazapyr	120		P	30 - 160
Imidacloprid	107		P	30 - 160
Linuron	87.3		P	30 - 160
Mandestrobin	95.3		P	30 - 160
MCPP	157		P	30 - 160
Naproxen	107		P	30 - 160
Primidone	93.2		P	30 - 160
Pyraclostrobin	94.2		P	30 - 160
Thiamethoxam	108		P	30 - 160
Tolfenpyrad	65.7		P	30 - 160
Triclopyr	111		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P380580

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P381067

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P380752

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: P380678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164630	Bromide	94.4	96.4	P/P	90 - 110
2164635	Bromide	94.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164634	Chloride	97.3		P	90 - 110
2164788	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164634	Sulfate	96.8		P	90 - 110
2164788	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164815	Ammonia-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164812	Kjeldahl Nitrogen	90.1	92.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164815	NO2NO3-N	96.9	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164681	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164678	O-Phosphate-P	94.6	98.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P380621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164419	Acesulfame K	86.4	86.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P380621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164419	AMPA	109	111	P/P	40 - 150
2164419	Endothall	142	144	P/P	40 - 150
2164419	Glufosinate	108	117	P/P	40 - 150
2164419	Glyphosate	73.4	78.7	P/P	40 - 140
2164419	Sucralose	114	106	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P380689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164417	2,4-D	132	151	P/P	30 - 160
2164417	Acetaminophen	92.0	94.0	P/P	30 - 160
2164417	Acetamiprid	95.0	93.7	P/P	30 - 160
2164417	Afidopyropen	92.8	94.5	P/P	30 - 160
2164417	Bentazon	76.3	87.3	P/P	30 - 160
2164417	Benzovindiflupyr	73.1	79.9	P/P	30 - 160
2164417	Carbamazepine	101	101	P/P	30 - 160
2164417	Clothianidin	95.8	105	P/P	30 - 160
2164417	Dinotefuran	114	117	P/P	30 - 160
2164417	Diuron	80.0	84.4	P/P	30 - 160
2164417	Fenuron	85.3	85.1	P/P	30 - 160
2164417	Fluridone	86.2	88.2	P/P	30 - 160
2164417	Hydrocodone	105	107	P/P	30 - 160
2164417	Ibuprofen	81.6	71.3	P/P	30 - 160
2164417	Imazapyr	126	91.1	P/P	30 - 160
2164417	Imidacloprid	158	147	P/P	30 - 160
2164417	Linuron	74.3	74.6	P/P	30 - 160
2164417	Mandestrobin	79.4	82.0	P/P	30 - 160
2164417	MCCP	153	160	P/F	30 - 160
2164417	Naproxen	91.7	96.2	P/P	30 - 160
2164417	Primidone	92.4	96.9	P/P	30 - 160
2164417	Pyraclostrobin	78.3	83.5	P/P	30 - 160
2164417	Thiamethoxam	134	129	P/P	30 - 160
2164417	Tolfenpyrad	55.6	55.9	P/P	30 - 160
2164417	Triclopyr	132	105	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164633	Fluoride	101	101	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P380752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2164807	Organic Carbon	98.7	99.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164839	Turbidity	0.778	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164630	Bromide	2.01	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164634	Chloride	0.0148	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P380937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164634	Sulfate	0.241	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164815	Ammonia-N	0.429	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164812	Kjeldahl Nitrogen	1.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164815	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164681	Total-P	0.387	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P380568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164678	O-Phosphate-P	2.82	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P380621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164419	Acesulfame K	0.270	Spike	P	0 - 30
2164419	AMPA	1.33	Spike	P	0 - 30
2164419	Endothall	1.80	Spike	P	0 - 30
2164419	Glufosinate	7.37	Spike	P	0 - 30
2164419	Glyphosate	6.98	Spike	P	0 - 30
2164419	Sucralose	4.63	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P380689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164417	2,4-D	12.4	Spike	P	0 - 30
2164417	Acetaminophen	2.17	Spike	P	0 - 30
2164417	Acetamiprid	1.31	Spike	P	0 - 30
2164417	Afidopyrophen	1.81	Spike	P	0 - 30
2164417	Bentazon	13.5	Spike	P	0 - 30
2164417	Benzovindiflupyr	8.91	Spike	P	0 - 30
2164417	Carbamazepine	0.397	Spike	P	0 - 30
2164417	Clothianidin	8.99	Spike	P	0 - 30
2164417	Dinotefuran	3.27	Spike	P	0 - 30
2164417	Diuron	4.85	Spike	P	0 - 30
2164417	Fenuron	0.243	Spike	P	0 - 30
2164417	Fluridone	1.93	Spike	P	0 - 30
2164417	Hydrocodone	1.75	Spike	P	0 - 30
2164417	Ibuprofen	13.5	Spike	P	0 - 30
2164417	Imazapyr	21.6	Spike	P	0 - 30
2164417	Imidacloprid	6.63	Spike	P	0 - 30
2164417	Linuron	0.384	Spike	P	0 - 30
2164417	Mandestrobin	3.32	Spike	P	0 - 30
2164417	MCP	4.84	Spike	P	0 - 30
2164417	Naproxen	4.77	Spike	P	0 - 30
2164417	Primidone	4.75	Spike	P	0 - 30
2164417	Pyraclostrobin	6.34	Spike	P	0 - 30
2164417	Thiamethoxam	3.85	Spike	P	0 - 30
2164417	Tolfenpyrad	0.428	Spike	P	0 - 30
2164417	Triclopyr	23.2	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P380580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164789	Color (true)	1.62	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P381067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164633	Total Alkalinity	0.408	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P381119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164811	TDS	5.22	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164633	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P380752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2164807	Organic Carbon	0.989	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2164828
Field Sample ID: G3NW0162

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	129	P	30 - 160
EPA 8321B	Acetaminophen-d4	95.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.7	P	30 - 160
EPA 8321B	Diuron-d6	97.5	P	30 - 160
EPA 8321B	Endothall-d6	100	P	30 - 160
EPA 8321B	Endothall-d6	100	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	74.1	P	30 - 160
EPA 8321B	Primidone-d5	90.6	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160
EPA 8321B	Sucralose-d6	101	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98086

Included Lab Sample IDs: 2164814

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98165

Included Lab Sample IDs: 2164813, 2164816

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.3	96.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98166

Included Lab Sample IDs: 2164811, 2164814

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

Reference Method: SM 2120 B-2011

Run ID: A98169

Included Lab Sample IDs: 2164811

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

Reference Method: EPA 8321B

Run ID: A98208

Included Lab Sample IDs: 2164828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	92.2	83.5	P/P	40 - 200
Glufosinate	116	118	P/P	40 - 200
Glyphosate	88.0	98.1	P/P	40 - 200

Reference Method: EPA 8321B

Run ID: A98210

Included Lab Sample IDs: 2164828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	85.3	86.7	P/P	60 - 160
Endothall	125	129	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A98229

Included Lab Sample IDs: 2164828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	113	110	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A98233

Included Lab Sample IDs: 2164812, 2164815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	99.5	P/P	90 - 110
Organic Carbon	99.5	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98259

Included Lab Sample IDs: 2164811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Sulfate	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98300

Included Lab Sample IDs: 2164812, 2164815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	94.6	P/P	90 - 110
Kjeldahl Nitrogen	98.9	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98337

Included Lab Sample IDs: 2164812, 2164815

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

Reference Method: SM 2320 B-2011

Run ID: A98350

Included Lab Sample IDs: 2164811, 2164814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98394

Included Lab Sample IDs: 2164828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	121	107	P/P	50 - 150
Acetaminophen	110	114	P/P	60 - 160
Acetamiprid	111	110	P/P	50 - 150
Afidopyropen	102	86.7	P/P	50 - 150
Bentazon	144	123	P/P	50 - 160
Benzovindiflupyr	101	101	P/P	50 - 150
Carbamazepine	120	102	P/P	60 - 150
Clothianidin	98.2	91.8	P/P	60 - 150
Dinotefuran	102	98.8	P/P	50 - 150
Diuron	118	109	P/P	60 - 150
Fenuron	104	103	P/P	60 - 150
Fluridone	99.2	106	P/P	60 - 160
Hydrocodone	101	110	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A98394

Included Lab Sample IDs: 2164828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ibuprofen	115	112	P/P	50 - 160
Imazapyr	100	103	P/P	50 - 150
Imidacloprid	98.2	108	P/P	60 - 150
Linuron	115	102	P/P	60 - 150
Mandestrobin	108	108	P/P	50 - 150
MCPP	116	102	P/P	50 - 150
Naproxen	129	103	P/P	50 - 160
Primidone	82.9	92.4	P/P	60 - 150
Pyraclostrobin	109	107	P/P	60 - 150
Thiamethoxam	108	87.6	P/P	50 - 150
Tolfenpyrad	105	107	P/P	60 - 150
Triclopyr	113	108	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98402

Included Lab Sample IDs: 2164812, 2164815

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98414

Included Lab Sample IDs: 2164812, 2164815

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

Reference Method: SM 4500 F-C-2011

Run ID: A98428

Included Lab Sample IDs: 2164811, 2164814

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	98.1	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					0.778	
EPA 300.0 Rev. 2.1	Bromide	96.6	94.4	96.4	94.9		2.01
	Chloride	100	97.3	98.9		0.0148	
	Sulfate	100	96.8	100		0.241	
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.5	99.0			0.429
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	90.1	92.1			1.80
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.9	97.9			1.01
EPA 365.1 Rev. 2.0	Total-P	105	108	108			0.387
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.3	94.6	98.7			2.82
EPA 8321B	2,4-D	147	132	151			12.4
	Acesulfame K	79.0	86.4	86.2			0.270
	Acetaminophen	101	92.0	94.0			2.17
	Acetamiprid	91.4	95.0	93.7			1.31
	Afidopyropen	98.9	92.8	94.5			1.81
	AMPA	92.0	109	111			1.33
	Bentazon	98.6	76.3	87.3			13.5
	Benzovindiflupyr	88.9	73.1	79.9			8.91
	Carbamazepine	124	101	101			0.397
	Clothianidin	95.1	95.8	105			8.99
	Dinotefuran	95.3	114	117			3.27
	Diuron	96.5	80.0	84.4			4.85
	Endothall	126	142	144			1.80
	Fenuron	96.2	85.3	85.1			0.243
	Fluridone	101	86.2	88.2			1.93
	Glufosinate	124	108	117			7.37
	Glyphosate	92.8	73.4	78.7			6.98
	Hydrocodone	106	105	107			1.75
	Ibuprofen	93.3	81.6	71.3			13.5
	Imazapyr	120	126	91.1			21.6
	Imidacloprid	107	158	147			6.63
	Linuron	87.3	74.3	74.6			0.384
	Mandestrobin	95.3	79.4	82.0			3.32
	MCPP	157	153	160			4.84
	Naproxen	107	91.7	96.2			4.77
	Primidone	93.2	92.4	96.9			4.75
	Pyraclostrobin	94.2	78.3	83.5			6.34
	Sucralose	103	114	106			4.63
	Thiamethoxam	108	134	129			3.85
	Tolfenpyrad	65.7	55.6	55.9			0.428
	Triclopyr	111	132	105			23.2
SM 2120 B-2011	Color (true)	100				1.62	
SM 2320 B-2011	Total Alkalinity	105				0.408	
SM 2540 C-2011	TDS					5.22	
SM 4500 F-C-2011	Fluoride	94.7	101	101			0.0
SM 5310 B-2011	Organic Carbon	101	98.7	99.7			0.989

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2164811, 2164814
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2164814
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2164811
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2164811

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2164812, 2164815
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2164812, 2164815
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2164812, 2164815
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2164812, 2164815
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2164813, 2164816
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2164828
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2164828
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2164811
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2164811, 2164814
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2164811
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2164811, 2164814
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2164811, 2164814
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2164812, 2164815

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	03/12/2020			03/12/2020 16:01	Yen Ta	2164811, 2164814
EPA 300.0 Rev. 2.1	03/12/2020			03/14/2020 04:55	Lipi Saha	2164814
	03/12/2020			03/18/2020 19:32	Lipi Saha	2164811
EPA 350.1 Rev. 2.0	03/12/2020			03/20/2020 13:00	Ping Hua	2164812
	03/12/2020			03/20/2020 13:01	Ping Hua	2164815
EPA 351.2 Rev. 2.0	03/12/2020	03/17/2020 12:40	Sima Feizi	03/18/2020 20:32	Julia Storbeck	2164812
	03/12/2020	03/17/2020 12:40	Sima Feizi	03/18/2020 20:47	Julia Storbeck	2164815
EPA 353.2 Rev. 2.0	03/12/2020			03/24/2020 11:54	Beverly Y. Sanders	2164815
	03/12/2020			03/24/2020 12:27	Beverly Y. Sanders	2164812
EPA 365.1 Rev. 2.0	03/12/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 14:04	Benjamin T. Nordmann	2164812
	03/12/2020	03/23/2020 15:45	Lipi Saha	03/24/2020 14:05	Benjamin T. Nordmann	2164815
EPA 365.1 Rev. 2.0 dissolved	03/12/2020			03/12/2020 16:22	Carlos Miranda	2164813
	03/12/2020			03/12/2020 16:23	Carlos Miranda	2164816
EPA 8321B	03/12/2020	03/13/2020 13:00	Mohammad Ghaffari	03/13/2020 19:57	Mohammad Ghaffari	2164828
	03/12/2020	03/13/2020 13:00	Mohammad Ghaffari	03/15/2020 22:33	Mohammad Ghaffari	2164828
	03/12/2020	03/13/2020 13:00	Mohammad Ghaffari	03/16/2020 19:25	Mohammad Ghaffari	2164828
	03/12/2020	03/17/2020 14:30	Hoor Shaik	03/20/2020 11:50	Juyoung Kim	2164828
SM 2120 B-2011	03/12/2020			03/12/2020 17:33	Madeline Gruver	2164811
SM 2320 B-2011	03/12/2020			03/21/2020 05:43	Dale L. Simmons	2164811
	03/12/2020			03/21/2020 05:51	Dale L. Simmons	2164814
SM 2540 C-2011	03/12/2020			03/16/2020 15:52	Yijie Li	2164811
SM 2540 D-2011	03/12/2020			03/16/2020 15:52	Yijie Li	2164811, 2164814
SM 4500 F-C-2011	03/12/2020			03/24/2020 21:34	Dale L. Simmons	2164811
	03/12/2020			03/24/2020 21:40	Dale L. Simmons	2164814
SM 5310 B-2011	03/12/2020			03/16/2020 15:50	Lauren Lees	2164812
	03/12/2020			03/16/2020 19:03	Lauren Lees	2164815