

Chemical Analysis Report

NW-DIST-2020-03-25-02

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

Event Description: **Shoal River**
Request ID: **RQ-2020-03-23-17**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 15-APR-2020 12:37

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Metals, 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: Yellow River downstream of Gin Hole Landing Collection Date/Time: 03/24/2020 10:40

Field ID: G4NW0494

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167621	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P381299	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P381867	
		Sulfate	1.4		mg SO4/L	P381871	
		Color (true)	51	A	PCU	P381328	
	SM 2320 B-2011	Total Alkalinity	14		mg CaCO3/L	P381656	
	SM 2540 C-2011	TDS	37		mg/L	P381715	
	SM 2540 D-2011	TSS	7	I	mg/L	P381708	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381964	RPD
2167622	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P381431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P381702	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P381592	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P381367	
	SM 5310 B-2011	Organic Carbon	3.8		mg C/L	P381388	
2167623	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P381295	
2167653	EPA 200.7 Rev. 4.4	Barium	16.6		ug/L	P381354	
		Calcium	5.33		mg/L	P381354	
		Iron	780		ug/L	P381354	
		Magnesium	1.34		mg/L	P381354	
		Potassium	0.58	I	mg/L	P381354	
		Sodium	2.1		mg/L	P381354	
		Zinc	5.0	U	ug/L	P381354	
	EPA 200.8 Rev. 5.4	Aluminum	215		ug/L	P381354	
		Antimony	0.050	U	ug/L	P381354	
		Arsenic	0.43		ug/L	P381354	
		Boron**	8.9		ug/L	P381354	
		Cadmium	0.020	U	ug/L	P381354	
		Chromium	0.45	I	ug/L	P381354	
		Copper	0.40	U	ug/L	P381354	
		Lead	0.27	I	ug/L	P381354	
		Nickel	0.50	U	ug/L	P381354	
		Selenium	0.20	U	ug/L	P381354	
		Silver	0.010	U	ug/L	P381354	
		Thallium	0.10	U	ug/L	P381354	
		Hardness	18.8		mg/L	P381354	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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: Shoal River near Rattlesnake Bluff

Collection Date/Time: 03/24/2020 11:00

Field ID: G4NW0493

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167615	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P381300	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P381867	
		Sulfate	1.3		mg SO4/L	P381871	
	SM 2120 B-2011	Color (true)	53		PCU	P381328	
	SM 2320 B-2011	Total Alkalinity	3.9		mg CaCO3/L	P381656	
	SM 2540 C-2011	TDS	21	I	mg/L	P381714	
	SM 2540 D-2011	TSS	6	IA	mg/L	P381707	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381963	
2167617	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P381430	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P381702	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P381591	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P381367	
	SM 5310 B-2011	Organic Carbon	3.6		mg C/L	P381388	
2167619	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P381295	
2167648	EPA 8321B	2,4-D	0.0020	U	ug/L	P381314	
		Acesulfame K**	0.10	U	ug/L	P381172	
		AMPA**	0.10	U	ug/L	P381172	
		Sucralose**	0.18		ug/L	P381172	
		Acetaminophen**	0.0080	U	ug/L	P381314	
		Acetamiprid**	0.0020	U	ug/L	P381314	
		Endothall**	0.25	U	ug/L	P381172	
		Glufosinate**	0.10	U	ug/L	P381172	
		Glyphosate**	0.10	U	ug/L	P381172	
		Afidopyropen**	0.0020	UJ	ug/L	P381314	
		Bentazon	8.0E-04	U	ug/L	P381314	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P381314	
		Carbamazepine**	8.0E-04	U	ug/L	P381314	
		Clothianidin**	0.0020	U	ug/L	P381314	
		Dinotefuran**	0.0020	U	ug/L	P381314	
		Diuron	0.0020	U	ug/L	P381314	
		Fenuron	0.016	U	ug/L	P381314	
		Fluridone**	8.0E-04	U	ug/L	P381314	
		Imazapyr**	0.014	I	ug/L	P381314	
		Hydrocodone**	0.0020	U	ug/L	P381314	
		Ibuprofen**	0.020	U	ug/L	P381314	
		Imidacloprid	0.0021	I	ug/L	P381314	
		Linuron	0.0040	U	ug/L	P381314	
		Mandestrobin**	0.0020	UJ	ug/L	P381314	
		MCP	0.0020	U	ug/L	P381314	
		Naproxen**	0.0080	U	ug/L	P381314	
		Primidone**	0.0040	U	ug/L	P381314	
		Pyraclostrobin**	0.0020	U	ug/L	P381314	
		Thiamethoxam**	0.0020	U	ug/L	P381314	

Field ID: G4NW0493

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167648	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P381314	
		Triclopyr**	0.0040	U	ug/L	P381314	
2167651	EPA 200.7 Rev. 4.4	Barium	15.1		ug/L	P381354	
		Calcium	1.95		mg/L	P381354	
		Iron	520		ug/L	P381354	
		Magnesium	0.90		mg/L	P381354	
		Potassium	0.49	I	mg/L	P381354	
		Sodium	2.0	I	mg/L	P381354	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P381354	
		Aluminum	192		ug/L	P381354	
		Antimony	0.050	U	ug/L	P381354	
		Arsenic	0.28		ug/L	P381354	
		Boron**	8.8		ug/L	P381354	
		Cadmium	0.020	U	ug/L	P381354	
		Chromium	0.40	U	ug/L	P381354	
		Copper	0.40	U	ug/L	P381354	
		Lead	0.26	I	ug/L	P381354	
		Nickel	0.50	U	ug/L	P381354	
		Selenium	0.20	U	ug/L	P381354	
		Silver	0.010	U	ug/L	P381354	
		Thallium	0.10	U	ug/L	P381354	
	SM 2340B	Hardness	8.6		mg/L	P381354	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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.

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

Sample Location: Shoal River near Rattlesnake Bluff

Collection Date/Time: 03/24/2020 11:05

Field ID: G4NW0493_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167616	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P381300	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P381867	
		Sulfate	1.3		mg SO4/L	P381871	
	SM 2120 B-2011	Color (true)	51		PCU	P381328	
	SM 2320 B-2011	Total Alkalinity	4.0		mg CaCO3/L	P381656	
	SM 2540 C-2011	TDS	19	I	mg/L	P381715	
	SM 2540 D-2011	TSS	6	I	mg/L	P381708	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381963	
2167618	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P381430	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P381702	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P381591	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P381367	
	SM 5310 B-2011	Organic Carbon	3.6		mg C/L	P381388	
2167620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P381295	
2167649	EPA 8321B	2,4-D	0.0020	U	ug/L	P381314	
		Acesulfame K**	0.10	U	ug/L	P381172	
		AMPA**	0.10	U	ug/L	P381172	
		Sucralose**	0.16		ug/L	P381172	
		Acetaminophen**	0.0080	U	ug/L	P381314	
		Acetamiprid**	0.0020	U	ug/L	P381314	
		Endothall**	0.25	U	ug/L	P381172	
		Glufosinate**	0.10	U	ug/L	P381172	
		Glyphosate**	0.10	U	ug/L	P381172	
		Afidopyropen**	0.0020	UJ	ug/L	P381314	
		Bentazon	8.0E-04	U	ug/L	P381314	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P381314	
		Carbamazepine**	8.0E-04	U	ug/L	P381314	
		Clothianidin**	0.0020	U	ug/L	P381314	
		Dinotefuran**	0.0020	U	ug/L	P381314	
		Diuron	0.0020	U	ug/L	P381314	
		Fenuron	0.016	U	ug/L	P381314	
		Fluridone**	8.0E-04	U	ug/L	P381314	
		Imazapyr**	0.012	I	ug/L	P381314	
		Hydrocodone**	0.0020	U	ug/L	P381314	
		Ibuprofen**	0.020	U	ug/L	P381314	
		Imidacloprid	0.0025	I	ug/L	P381314	
		Linuron	0.0040	U	ug/L	P381314	
		Mandestrobin**	0.0020	UJ	ug/L	P381314	
		MCPP	0.0020	U	ug/L	P381314	
		Naproxen**	0.0080	U	ug/L	P381314	
		Primidone**	0.0040	U	ug/L	P381314	
		Pyraclostrobin**	0.0020	U	ug/L	P381314	
		Thiamethoxam**	0.0020	U	ug/L	P381314	

Field ID: G4NW0493_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167649	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P381314	
		Triclopyr**	0.0040	U	ug/L	P381314	
2167652	EPA 200.7 Rev. 4.4	Barium	15.2		ug/L	P381354	
		Calcium	1.94		mg/L	P381354	
		Iron	520		ug/L	P381354	
		Magnesium	0.90		mg/L	P381354	
		Potassium	0.50	I	mg/L	P381354	
		Sodium	2.0	I	mg/L	P381354	
		Zinc	5.0	U	ug/L	P381354	
	EPA 200.8 Rev. 5.4	Aluminum	194		ug/L	P381354	
		Antimony	0.050	U	ug/L	P381354	
		Arsenic	0.30		ug/L	P381354	
		Boron**	8.8		ug/L	P381354	
		Cadmium	0.020	U	ug/L	P381354	
		Chromium	0.40	U	ug/L	P381354	
		Copper	0.40	U	ug/L	P381354	
		Lead	0.26	I	ug/L	P381354	
		Nickel	0.50	U	ug/L	P381354	
		Selenium	0.20	U	ug/L	P381354	
		Silver	0.010	U	ug/L	P381354	
		Thallium	0.10	U	ug/L	P381354	
	SM 2340B	Hardness	8.5		mg/L	P381354	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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.

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

Sample Location: Shoal River near Rattlesnake Bluff

Collection Date/Time: 03/24/2020 11:10

Field ID: FB_03242020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167630	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P381300	RPD
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P381867	
		Sulfate	0.20	U	mg SO4/L	P381871	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P381329	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P381657	
	SM 2540 C-2011	TDS	15	U	mg/L	P381714	
	SM 2540 D-2011	TSS	2	U	mg/L	P381707	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381964	
2167631	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P381431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P381702	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P381592	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P381416	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P381388	
2167632	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P381295	
2167650	EPA 8321B	2,4-D	0.0020	U	ug/L	P381314	
		Acesulfame K**	0.10	U	ug/L	P381172	
		AMPA**	0.10	U	ug/L	P381172	
		Sucralose**	0.010	U	ug/L	P381172	
		Acetaminophen**	0.0080	U	ug/L	P381314	
		Acetamiprid**	0.0020	U	ug/L	P381314	
		Endothall**	0.25	U	ug/L	P381172	
		Glufosinate**	0.10	U	ug/L	P381172	
		Glyphosate**	0.10	U	ug/L	P381172	
		Afidopyropen**	0.0020	UJ	ug/L	P381314	
		Bentazon	8.0E-04	U	ug/L	P381314	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P381314	
		Carbamazepine**	8.0E-04	U	ug/L	P381314	
		Clothianidin**	0.0020	U	ug/L	P381314	
		Dinotefuran**	0.0020	U	ug/L	P381314	
		Diuron	0.0020	U	ug/L	P381314	
		Fenuron	0.016	U	ug/L	P381314	
		Fluridone**	8.0E-04	U	ug/L	P381314	
		Imazapyr**	0.0040	U	ug/L	P381314	
		Hydrocodone**	0.0020	U	ug/L	P381314	
		Ibuprofen**	0.020	U	ug/L	P381314	
		Imidacloprid	0.0020	U	ug/L	P381314	
		Linuron	0.0040	U	ug/L	P381314	
		Mandestrobin**	0.0020	UJ	ug/L	P381314	
		MCP	0.0020	U	ug/L	P381314	
		Naproxen**	0.0080	U	ug/L	P381314	
		Primidone**	0.0040	U	ug/L	P381314	
		Pyraclostrobin**	0.0020	U	ug/L	P381314	
		Thiamethoxam**	0.0020	U	ug/L	P381314	

Field ID: FB_03242020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167650	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P381314	
		Triclopyr**	0.0040	U	ug/L	P381314	
2167654	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P381354	
		Calcium	0.075	U	mg/L	P381354	
		Iron	30	U	ug/L	P381354	
		Magnesium	0.040	U	mg/L	P381354	
		Potassium	0.30	U	mg/L	P381354	
		Sodium	0.50	U	mg/L	P381354	
		Zinc	5.0	U	ug/L	P381354	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P381354	
		Antimony	0.050	U	ug/L	P381354	
		Arsenic	0.050	U	ug/L	P381354	
		Boron**	2.0	U	ug/L	P381354	
		Cadmium	0.020	U	ug/L	P381354	
		Chromium	0.40	U	ug/L	P381354	
		Copper	0.40	U	ug/L	P381354	
		Lead	0.20	U	ug/L	P381354	
		Nickel	0.50	U	ug/L	P381354	
		Selenium	0.20	U	ug/L	P381354	
		Silver	0.010	U	ug/L	P381354	
		Thallium	0.10	U	ug/L	P381354	
	SM 2340B	Hardness	0.35	U	mg/L	P381354	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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.

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

Sample Location: Dead River upstream of Yellow River

Collection Date/Time: 03/24/2020 13:26

Field ID: G4NW0408

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167624	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P381300	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P381867	
		Sulfate	0.80		mg SO4/L	P381871	
		Color (true)	55		PCU	P381329	
	SM 2320 B-2011	Total Alkalinity	8.8		mg CaCO3/L	P381656	
	SM 2540 C-2011	TDS	29		mg/L	P381715	
	SM 2540 D-2011	TSS	3	I	mg/L	P381708	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381964	RPD
2167626	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P381431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P381702	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P381690	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P381367	
	SM 5310 B-2011	Organic Carbon	4.1		mg C/L	P381388	
2167628	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P381295	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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: Yellow River below Nichols Creek Confluence Collection Date/Time: 03/24/2020 13:57

Field ID: G4NW0270

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167625	EPA 180.1 Rev. 2.0	Turbidity	6.6	A	NTU	P381300	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P381867	
		Sulfate	1.2		mg SO4/L	P381871	
	SM 2120 B-2011	Color (true)	54		PCU	P381329	
	SM 2320 B-2011	Total Alkalinity	12		mg CaCO3/L	P381656	
	SM 2540 C-2011	TDS	36		mg/L	P381715	
	SM 2540 D-2011	TSS	8	I	mg/L	P381708	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381964	RPD
2167627	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P381431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P381702	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P381592	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P381416	
	SM 5310 B-2011	Organic Carbon	3.8		mg C/L	P381388	
2167629	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P381295	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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: P381299

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381300

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381354

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381354

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381867

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381871

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381430

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381431

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381702

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381591

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381592

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381690

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381367

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381416

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381295

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: P381172

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: P381314

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: P381328

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P381329

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P381656

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

Reference Method: SM 2320 B-2011
Batch ID: P381657

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

Reference Method: SM 2540 C-2011
Batch ID: P381714

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P381715

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381707

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381708

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381963

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381964

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P381388

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	101		P	85 - 115
Iron	103		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	101		P	85 - 115
Sodium	102		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.8		P	85 - 115
Antimony	96.2		P	85 - 115
Arsenic	97.3		P	85 - 115
Boron	97.7		P	85 - 115
Cadmium	96.4		P	85 - 115
Chromium	96.8		P	85 - 115
Copper	96.7		P	85 - 115
Lead	93.8		P	85 - 115
Nickel	102		P	85 - 115
Selenium	93.5		P	85 - 115
Silver	100		P	85 - 115
Thallium	91.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381867

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381871

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381430

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381431

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.3		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381702

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381690

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381367

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381416

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: P381295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P381172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	112		P	40 - 150
AMPA	109		P	40 - 150
Endothall	78.3		P	40 - 150
Glufosinate	112		P	40 - 150
Glyphosate	123		P	40 - 140
Sucralose	92.3		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P381314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	111		P	30 - 160
Acetaminophen	75.1		P	30 - 160
Acetamiprid	98.8		P	30 - 160
Afidopyropen	98.3		P	30 - 160
Bentazon	59.2		P	30 - 160
Benzovindiflupyr	80.5		P	30 - 160
Carbamazepine	117		P	30 - 160
Clothianidin	94.6		P	30 - 160
Dinotefuran	87.2		P	30 - 160
Diuron	105		P	30 - 160
Fenuron	102		P	30 - 160
Fluridone	84.6		P	30 - 160
Hydrocodone	87.4		P	30 - 160
Ibuprofen	73.2		P	30 - 160
Imazapyr	91.8		P	30 - 160
Imidacloprid	121		P	30 - 160
Linuron	69.9		P	30 - 160
Mandestrobin	86.7		P	30 - 160
MCPP	119		P	30 - 160
Naproxen	68.8		P	30 - 160
Primidone	102		P	30 - 160
Pyraclostrobin	78.8		P	30 - 160
Thiamethoxam	101		P	30 - 160
Tolfenpyrad	51.4		P	30 - 160
Triclopyr	93.9		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P381328

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

Reference Method: SM 2120 B-2011
Batch ID: P381329

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P381656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	98 - 107

Reference Method: SM 2320 B-2011
Batch ID: P381657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P381963

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.9		P	92 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P381964

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.4		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P381388

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167542	Barium	98.1	100	P/P	80 - 120
2167542	Calcium	99.7		P	80 - 120
2167542	Iron	101	100	P/P	80 - 120
2167542	Magnesium	101		P	80 - 120
2167542	Potassium	98.8	98.1	P/P	80 - 120
2167542	Sodium	98.7	98.7	P/P	80 - 120
2167542	Zinc	98.3	101	P/P	80 - 120
2167572	Barium	100		P	80 - 120
2167572	Calcium	98.7		P	80 - 120
2167572	Iron	99.9		P	80 - 120
2167572	Magnesium	100		P	80 - 120
2167572	Potassium	97.4		P	80 - 120
2167572	Sodium	100		P	80 - 120
2167572	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167542	Aluminum	97.4	97.1	P/P	80 - 120
2167542	Antimony	98.9	97.8	P/P	80 - 120
2167542	Arsenic	100	99.5	P/P	80 - 120
2167542	Boron	103	102	P/P	80 - 120
2167542	Cadmium	100	100	P/P	80 - 120
2167542	Chromium	101	98.8	P/P	80 - 120
2167542	Copper	98.3	97.4	P/P	80 - 120
2167542	Lead	95.5	94.8	P/P	80 - 120
2167542	Nickel	93.2	95.9	P/P	80 - 120
2167542	Selenium	96.7	92.3	P/P	80 - 120
2167542	Silver	103	102	P/P	80 - 120
2167542	Thallium	95.0	95.3	P/P	80 - 120
2167572	Aluminum	95.1		P	80 - 120
2167572	Antimony	97.2		P	80 - 120
2167572	Arsenic	99.2		P	80 - 120
2167572	Boron	102		P	80 - 120
2167572	Cadmium	98.0		P	80 - 120
2167572	Chromium	101		P	80 - 120
2167572	Copper	98.3		P	80 - 120
2167572	Lead	94.7		P	80 - 120
2167572	Nickel	94.0		P	80 - 120
2167572	Selenium	94.1		P	80 - 120
2167572	Silver	102		P	80 - 120
2167572	Thallium	93.5		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167262	Chloride	107		P	90 - 110
2167615	Chloride	99.7		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167262	Sulfate	106		P	90 - 110
2167615	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167591	Ammonia-N	99.3	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167622	Ammonia-N	98.6	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167540	NO2NO3-N	97.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167622	NO2NO3-N	94.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167626	NO2NO3-N	97.0	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167560	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167029	Total-P	104	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167623	O-Phosphate-P	97.1	98.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P381172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167436	Acesulfame K	87.6	86.0	P/P	40 - 150
2167436	AMPA	122	116	P/P	40 - 150
2167436	Endothall	98.8	93.5	P/P	40 - 150
2167436	Glufosinate	113	114	P/P	40 - 150
2167436	Glyphosate	118	116	P/P	40 - 140
2167436	Sucralose	88.9	82.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P381314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167754	2,4-D	115	114	P/P	30 - 160
2167754	Acetaminophen	102	101	P/P	30 - 160
2167754	Acetamiprid	98.0	89.3	P/P	30 - 160
2167754	Afidopyropen	84.5	90.8	P/P	30 - 160
2167754	Bentazon	39.9	42.2	P/P	30 - 160
2167754	Benzovindiflupyr	82.9	74.8	P/P	30 - 160
2167754	Carbamazepine	89.3	89.0	P/P	30 - 160
2167754	Clothianidin	91.0	87.7	P/P	30 - 160
2167754	Dinotefuran	117	114	P/P	30 - 160
2167754	Diuron	89.0	85.9	P/P	30 - 160
2167754	Fenuron	67.0	65.3	P/P	30 - 160
2167754	Fluridone	82.2	81.6	P/P	30 - 160
2167754	Hydrocodone	89.8	87.2	P/P	30 - 160
2167754	Ibuprofen	74.2	67.1	P/P	30 - 160
2167754	Imazapyr	112	113	P/P	30 - 160
2167754	Imidacloprid	140	138	P/P	30 - 160
2167754	Linuron	60.8	62.5	P/P	30 - 160
2167754	Mandestrobin	87.2	80.8	P/P	30 - 160
2167754	MCP	115	112	P/P	30 - 160
2167754	Naproxen	85.0	86.8	P/P	30 - 160
2167754	Primidone	85.6	78.5	P/P	30 - 160
2167754	Pyraclostrobin	85.2	81.2	P/P	30 - 160
2167754	Thiamethoxam	126	120	P/P	30 - 160
2167754	Tolfenpyrad	59.3	53.7	P/P	30 - 160
2167754	Triclopyr	103	104	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P381963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167376	Fluoride	100	101	P/P	91 - 105

Reference Method: SM 4500 F-C-2011
Batch ID: P381964

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167780	Fluoride	96.3	98.4	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P381388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167591	Organic Carbon	101	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167590	Turbidity	6.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167625	Turbidity	8.96	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167542	Barium	2.32	Spike	P	0 - 20
2167542	Calcium	0.522	Spike	P	0 - 20
2167542	Iron	0.873	Spike	P	0 - 20
2167542	Magnesium	0.359	Spike	P	0 - 20
2167542	Potassium	0.605	Spike	P	0 - 20
2167542	Sodium	0.0269	Spike	P	0 - 20
2167542	Zinc	2.48	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167542	Aluminum	0.320	Spike	P	0 - 20
2167542	Antimony	1.19	Spike	P	0 - 20
2167542	Arsenic	0.728	Spike	P	0 - 20
2167542	Boron	0.846	Spike	P	0 - 20
2167542	Cadmium	0.00469	Spike	P	0 - 20
2167542	Chromium	2.44	Spike	P	0 - 20
2167542	Copper	0.850	Spike	P	0 - 20
2167542	Lead	0.729	Spike	P	0 - 20
2167542	Nickel	2.85	Spike	P	0 - 20
2167542	Selenium	4.60	Spike	P	0 - 20
2167542	Silver	0.945	Spike	P	0 - 20
2167542	Thallium	0.390	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167262	Chloride	0.529	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167591	Ammonia-N	0.237	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167622	Ammonia-N	0.120	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167585	Kjeldahl Nitrogen	4.64	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167540	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167622	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167626	NO2NO3-N	0.304	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167560	Total-P	0.656	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167029	Total-P	3.59	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P381295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167623	O-Phosphate-P	0.968	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P381172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167436	Acesulfame K	1.72	Spike	P	0 - 30
2167436	AMPA	4.65	Spike	P	0 - 30
2167436	Endothall	5.49	Spike	P	0 - 30
2167436	Glufosinate	0.680	Spike	P	0 - 30
2167436	Glyphosate	1.41	Spike	P	0 - 30
2167436	Sucralose	2.64	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P381314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167754	2,4-D	0.926	Spike	P	0 - 30
2167754	Acetaminophen	1.01	Spike	P	0 - 30
2167754	Acetamiprid	9.26	Spike	P	0 - 30
2167754	Afidopyrophen	7.14	Spike	P	0 - 30
2167754	Bentazon	5.67	Spike	P	0 - 30
2167754	Benzovindiflupyr	10.2	Spike	P	0 - 30
2167754	Carbamazepine	0.342	Spike	P	0 - 30
2167754	Clothianidin	3.73	Spike	P	0 - 30
2167754	Dinotefuran	2.79	Spike	P	0 - 30
2167754	Diuron	3.57	Spike	P	0 - 30
2167754	Fenuron	2.66	Spike	P	0 - 30
2167754	Fluridone	0.734	Spike	P	0 - 30
2167754	Hydrocodone	2.95	Spike	P	0 - 30
2167754	Ibuprofen	10.1	Spike	P	0 - 30
2167754	Imazapyr	0.307	Spike	P	0 - 30
2167754	Imidacloprid	1.01	Spike	P	0 - 30
2167754	Linuron	2.75	Spike	P	0 - 30
2167754	Mandestrobin	7.65	Spike	P	0 - 30
2167754	MCPP	2.67	Spike	P	0 - 30
2167754	Naproxen	2.10	Spike	P	0 - 30
2167754	Primidone	8.67	Spike	P	0 - 30
2167754	Pyraclostrobin	4.81	Spike	P	0 - 30
2167754	Thiamethoxam	4.76	Spike	P	0 - 30
2167754	Tolfenpyrad	9.91	Spike	P	0 - 30
2167754	Triclopyr	0.577	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
 Batch ID: P381328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167621	Color (true)	6.41	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P381329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167748	Color (true)	4.76	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P381656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168318	Total Alkalinity	0.0608	Sample	P	0 - 3.3

Reference Method: SM 2320 B-2011
Batch ID: P381657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2168022	Total Alkalinity	0.761	Sample	P	0 - 3.3

Reference Method: SM 2540 C-2011
Batch ID: P381714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167731	TDS	4.83	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P381715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167732	TDS	7.47	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167376	Fluoride	0.461	Spike	P	0 - 2.0

Reference Method: SM 4500 F-C-2011
Batch ID: P381964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167780	Fluoride	2.09	Spike	F	0 - 2.0

Reference Method: SM 5310 B-2011
Batch ID: P381388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167591	Organic Carbon	1.05	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Surrogates

Lab Sample ID: 2167648
Field Sample ID: G4NW0493

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	118	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	123	P	30 - 160
EPA 8321B	Diuron-d6	129	P	30 - 160
EPA 8321B	Endothall-d6	104	P	30 - 200
EPA 8321B	Endothall-d6	104	P	30 - 200
EPA 8321B	Glyphosate 13C 15N	137	P	30 - 200
EPA 8321B	Glyphosate 13C 15N	137	P	30 - 200
EPA 8321B	Ibuprofen-d3	85.9	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 200
EPA 8321B	Sucralose-d6	103	P	30 - 200

Lab Sample ID: 2167649
Field Sample ID: G4NW0493_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	125	P	30 - 160
EPA 8321B	Acetaminophen-d4	84.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	120	P	30 - 160
EPA 8321B	Diuron-d6	120	P	30 - 160
EPA 8321B	Endothall-d6	112	P	30 - 200
EPA 8321B	Endothall-d6	112	P	30 - 200
EPA 8321B	Glyphosate 13C 15N	130	P	30 - 200
EPA 8321B	Glyphosate 13C 15N	130	P	30 - 200
EPA 8321B	Ibuprofen-d3	87.0	P	30 - 160
EPA 8321B	Primidone-d5	116	P	30 - 160
EPA 8321B	Sucralose-d6	98.8	P	30 - 200
EPA 8321B	Sucralose-d6	98.8	P	30 - 200

Lab Sample ID: 2167650
Field Sample ID: FB_03242020

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	114	P	30 - 160
EPA 8321B	Acetaminophen-d4	78.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	127	P	30 - 160
EPA 8321B	Diuron-d6	130	P	30 - 160
EPA 8321B	Endothall-d6	88.8	P	30 - 200
EPA 8321B	Endothall-d6	88.8	P	30 - 200
EPA 8321B	Glyphosate 13C 15N	155	P	30 - 200
EPA 8321B	Glyphosate 13C 15N	155	P	30 - 200
EPA 8321B	Ibuprofen-d3	83.7	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 200
EPA 8321B	Sucralose-d6	105	P	30 - 200

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98436

Included Lab Sample IDs: 2167619, 2167620, 2167623, 2167628, 2167629, 2167632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.0	P/P	90 - 110
O-Phosphate-P	98.0	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98437

Included Lab Sample IDs: 2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A98455

Included Lab Sample IDs: 2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 8321B

Run ID: A98465

Included Lab Sample IDs: 2167648, 2167649, 2167650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	68.5	87.5	P/P	40 - 200
Endothall	85.3	70.9	P/P	40 - 200

Reference Method: EPA 8321B

Run ID: A98468

Included Lab Sample IDs: 2167648, 2167649, 2167650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	98.6	99.6	P/P	40 - 200
Glufosinate	118	119	P/P	40 - 200
Glyphosate	120	128	P/P	40 - 200

Reference Method: SM 5310 B-2011

Run ID: A98483

Included Lab Sample IDs: 2167617, 2167618, 2167622, 2167626, 2167627, 2167631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.8	P/P	90 - 110
Organic Carbon	99.8	100	P/P	90 - 110
Organic Carbon	100	91.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98487

Included Lab Sample IDs: 2167648, 2167649, 2167650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	99.0	105	P/P	40 - 200

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98491

Included Lab Sample IDs: 2167617, 2167618, 2167622, 2167626, 2167627, 2167631

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98529

Included Lab Sample IDs: 2167651, 2167652, 2167653, 2167654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.4	98.4	P/P	90 - 110
Aluminum	100	97.8	P/P	90 - 110
Antimony	98.1	97.4	P/P	90 - 110
Antimony	99.7	98.7	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Arsenic	104	102	P/P	90 - 110
Boron	104	104	P/P	90 - 110
Boron	104	102	P/P	90 - 110
Cadmium	98.2	99.1	P/P	90 - 110
Cadmium	98.5	99.3	P/P	90 - 110
Chromium	97.8	97.5	P/P	90 - 110
Chromium	99.2	97.9	P/P	90 - 110
Copper	98.6	97.9	P/P	90 - 110
Copper	99.5	99.0	P/P	90 - 110
Lead	97.1	97.2	P/P	90 - 110
Lead	97.6	97.5	P/P	90 - 110
Selenium	101	95.7	P/P	90 - 110
Selenium	98.9	97.6	P/P	90 - 110
Silver	102	103	P/P	90 - 110
Silver	103	103	P/P	90 - 110
Thallium	90.4	90.9	P/P	90 - 110
Thallium	90.7	91.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98546

Included Lab Sample IDs: 2167617, 2167618, 2167622, 2167627, 2167631

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98560

Included Lab Sample IDs: 2167627, 2167631

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

Reference Method: SM 2320 B-2011

Run ID: A98581

Included Lab Sample IDs: 2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A98581

Included Lab Sample IDs: 2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.0	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98590

Included Lab Sample IDs: 2167626

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98608

Included Lab Sample IDs: 2167617, 2167618, 2167622, 2167626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98626

Included Lab Sample IDs: 2167651, 2167652, 2167653, 2167654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	101	P/P	90 - 110
Barium	101	100	P/P	95 - 105
Calcium	99.2	99.5	P/P	95 - 105
Calcium	99.6	98.8	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	102	102	P/P	95 - 105
Magnesium	101	101	P/P	95 - 105
Magnesium	101	101	P/P	90 - 110
Potassium	100	101	P/P	90 - 110
Potassium	100	100	P/P	95 - 105
Sodium	100	100	P/P	95 - 105
Sodium	99.8	101	P/P	90 - 110
Zinc	101	99.6	P/P	95 - 105
Zinc	99.6	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98631

Included Lab Sample IDs: 2167651, 2167652, 2167653, 2167654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	101	101	P/P	90 - 110
Nickel	97.7	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98637

Included Lab Sample IDs: 2167617, 2167618, 2167622, 2167626, 2167627, 2167631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.1	99.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98675

Included Lab Sample IDs: 2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.5	101	P/P	90 - 110
Chloride	99.2	98.5	P/P	90 - 110
Sulfate	101	99.6	P/P	90 - 110
Sulfate	99.6	103	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98689

Included Lab Sample IDs: 2167648, 2167649, 2167650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	105	93.5	P/P	50 - 150
Acetaminophen	91.0	93.2	P/P	60 - 160
Acetamiprid	105	98.7	P/P	50 - 150
Afidopyropen	102	98.6	P/P	50 - 150
Bentazon	87.8	81.1	P/P	50 - 160
Benzovindiflupyr	105	105	P/P	50 - 150
Carbamazepine	100	103	P/P	60 - 150
Clothianidin	96.3	98.1	P/P	60 - 150
Dinotefuran	93.4	97.9	P/P	50 - 150
Diuron	97.2	102	P/P	60 - 160
Fenuron	90.6	91.4	P/P	60 - 150
Fluridone	106	102	P/P	60 - 160
Hydrocodone	107	102	P/P	60 - 150
Ibuprofen	97.7	96.4	P/P	50 - 160
Imazapyr	106	91.6	P/P	50 - 150
Imidacloprid	96.7	95.0	P/P	60 - 150
Linuron	98.4	94.4	P/P	60 - 150
Mandestrobin	107	106	P/P	50 - 150
MCP	91.2	93.9	P/P	50 - 150
Naproxen	63.6	84.9	P/P	50 - 160
Primidone	99.6	96.9	P/P	60 - 150
Pyraclostrobin	107	104	P/P	60 - 150
Thiamethoxam	98.4	94.9	P/P	50 - 150
Tolfenpyrad	104	102	P/P	60 - 150
Triclopyr	99.7	90.9	P/P	50 - 150

Reference Method: SM 4500 F-C-2011

Run ID: A98715

Included Lab Sample IDs: 2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	93.4	95.0	P/P	90 - 110
Fluoride	96.3	93.4	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						6.65	
	Turbidity						8.96	
EPA 200.7 Rev. 4.4	Barium	102	98.1	100	100			2.32
	Calcium	101	99.7	98.7				0.522
	Iron	103	101	100	99.9			0.873
	Magnesium	102	101	100				0.359
	Potassium	101	98.8	98.1	97.4			0.605
	Sodium	102	98.7	98.7	100			0.0269
	Zinc	103	98.3	101	101			2.48
EPA 200.8 Rev. 5.4	Aluminum	94.8	97.4	97.1	95.1			0.320
	Antimony	96.2	98.9	97.8	97.2			1.19
	Arsenic	97.3	100	99.5	99.2			0.728
	Boron	97.7	103	102	102			0.846
	Cadmium	96.4	100	100	98.0			0.0046
	Chromium	96.8	101	98.8	101			2.44
	Copper	96.7	98.3	97.4	98.3			0.850
	Lead	93.8	95.5	94.8	94.7			0.729
	Nickel	102	93.2	95.9	94.0			2.85
	Selenium	93.5	96.7	92.3	94.1			4.60
	Silver	100	103	102	102			0.945
	Thallium	91.2	95.0	95.3	93.5			0.390
EPA 300.0 Rev. 2.1	Chloride	102	107	99.7			0.529	
	Sulfate	103	106	101				
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.3	99.6				0.237
	Ammonia-N	99.3	98.6	98.5				0.120
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101						4.64
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	97.2					0.0
	NO2NO3-N	98.5	94.8					0.0
	NO2NO3-N	98.5	97.0	96.5				0.304
EPA 365.1 Rev. 2.0	Total-P	104	107	107				0.656
	Total-P	104	104	108				3.59
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	97.1	98.1				0.968
EPA 8321B	2,4-D	111	115	114				0.926
	Acesulfame K	112	87.6	86.0				1.72
	Acetaminophen	75.1	102	101				1.01
	Acetamiprid	98.8	98.0	89.3				9.26
	Afidopyropen	98.3	84.5	90.8				7.14
	AMPA	109	122	116				4.65
	Bentazon	59.2	39.9	42.2				5.67
	Benzovindiflupyr	80.5	82.9	74.8				10.2
	Carbamazepine	117	89.3	89.0				0.342
	Clothianidin	94.6	91.0	87.7				3.73
	Dinotefuran	87.2	117	114				2.79
	Diuron	105	89.0	85.9				3.57
	Endothall	78.3	98.8	93.5				5.49
	Fenuron	102	67.0	65.3				2.66
	Fluridone	84.6	82.2	81.6				0.734
	Glufosinate	112	113	114				0.680
	Glyphosate	123	118	116				1.41
	Hydrocodone	87.4	89.8	87.2				2.95
	Ibuprofen	73.2	74.2	67.1				10.1
	Imazapyr	91.8	112	113				0.307
	Imidacloprid	121	140	138				1.01
	Linuron	69.9	60.8	62.5				2.75

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Mandestrobin	86.7	87.2	80.8		7.65
	MCPD	119	115	112		2.67
	Naproxen	68.8	85.0	86.8		2.10
	Primidone	102	85.6	78.5		8.67
	Pyraclostrobin	78.8	85.2	81.2		4.81
	Sucralose	92.3	88.9	82.6		2.64
	Thiamethoxam	101	126	120		4.76
	Tolfenpyrad	51.4	59.3	53.7		9.91
	Triclopyr	93.9	103	104		0.577
SM 2120 B-2011	Color (true)	101			6.41	
	Color (true)	103			4.76	
SM 2320 B-2011	Total Alkalinity	99.1			0.0608	
	Total Alkalinity	99.7			0.761	
SM 2540 C-2011	TDS				4.83	
	TDS				7.47	
SM 4500 F-C-2011	Fluoride	94.9	100	101		0.461
	Fluoride	93.4	96.3	98.4		2.09
SM 5310 B-2011	Organic Carbon	101	101	102		1.05

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2167651, 2167652, 2167653, 2167654
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2167651, 2167652, 2167653, 2167654
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2167617, 2167618, 2167622, 2167626, 2167627, 2167631
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2167617, 2167618, 2167622, 2167626, 2167627, 2167631
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2167617, 2167618, 2167622, 2167626, 2167627, 2167631
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2167617, 2167618, 2167622, 2167626, 2167627, 2167631
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2167619, 2167620, 2167623, 2167628, 2167629, 2167632
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2167648, 2167649, 2167650
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2167648, 2167649, 2167650
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2167651, 2167652, 2167653, 2167654
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2167617, 2167618, 2167622, 2167626, 2167627, 2167631

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	03/25/2020			03/25/2020 17:03	Yen Ta	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
EPA 200.7 Rev. 4.4	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/02/2020 13:39	Betina Topolski	2167654
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/02/2020 16:47	Betina Topolski	2167651
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/02/2020 16:53	Betina Topolski	2167652
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/02/2020 16:59	Betina Topolski	2167653
EPA 200.8 Rev. 5.4	03/25/2020	03/26/2020 16:00	Elliott D. Healy	03/30/2020 15:57	Justin Cutchin	2167654
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	03/30/2020 18:48	Justin Cutchin	2167651
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	03/30/2020 18:55	Justin Cutchin	2167652
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	03/30/2020 19:01	Justin Cutchin	2167653
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/03/2020 01:27	Justin Cutchin	2167654
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/03/2020 04:16	Justin Cutchin	2167651
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/03/2020 04:23	Justin Cutchin	2167652
	03/25/2020	03/26/2020 16:00	Elliott D. Healy	04/03/2020 04:30	Justin Cutchin	2167653
EPA 300.0 Rev. 2.1	03/25/2020			04/02/2020 16:34	Elliott Rodriguez	2167615
	03/25/2020			04/02/2020 20:16	Elliott Rodriguez	2167616
	03/25/2020			04/02/2020 20:34	Elliott Rodriguez	2167621
	03/25/2020			04/02/2020 20:51	Elliott Rodriguez	2167624
	03/25/2020			04/02/2020 21:08	Elliott Rodriguez	2167625
	03/25/2020			04/02/2020 21:25	Elliott Rodriguez	2167630
EPA 350.1 Rev. 2.0	03/25/2020			03/28/2020 14:48	Ping Hua	2167617
	03/25/2020			03/28/2020 14:50	Ping Hua	2167618
	03/25/2020			03/28/2020 14:56	Ping Hua	2167622
	03/25/2020			03/28/2020 15:06	Ping Hua	2167626
	03/25/2020			03/28/2020 15:08	Ping Hua	2167627
	03/25/2020			03/28/2020 15:15	Ping Hua	2167631
EPA 351.2 Rev. 2.0	03/25/2020	04/02/2020 09:25	Sima Feizi	04/03/2020 09:24	Jhamieka S. Greenwood	2167617
	03/25/2020	04/02/2020 09:25	Sima Feizi	04/03/2020 09:25	Jhamieka S. Greenwood	2167618
	03/25/2020	04/02/2020 09:25	Sima Feizi	04/03/2020 09:27	Jhamieka S. Greenwood	2167622
	03/25/2020	04/02/2020 09:25	Sima Feizi	04/03/2020 09:29	Jhamieka S. Greenwood	2167626
	03/25/2020	04/02/2020 09:25	Sima Feizi	04/03/2020 09:30	Jhamieka S. Greenwood	2167627
	03/25/2020	04/02/2020 09:25	Sima Feizi	04/03/2020 09:32	Jhamieka S. Greenwood	2167631
EPA 353.2 Rev. 2.0	03/25/2020			03/31/2020 09:42	Beverly Y. Sanders	2167617
	03/25/2020			03/31/2020 09:43	Beverly Y. Sanders	2167618
	03/25/2020			03/31/2020 09:50	Beverly Y. Sanders	2167622
	03/25/2020			03/31/2020 09:57	Beverly Y. Sanders	2167627
	03/25/2020			03/31/2020 09:58	Beverly Y. Sanders	2167631
	03/25/2020			04/02/2020 08:06	Beverly Y. Sanders	2167626
EPA 365.1 Rev. 2.0	03/25/2020	03/26/2020 17:15	Yen Ta	04/01/2020 19:10	Benjamin T. Nordmann	2167617
	03/25/2020	03/26/2020 17:15	Yen Ta	04/01/2020 19:11	Benjamin T. Nordmann	2167618

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	03/25/2020	03/26/2020 17:15	Yen Ta	04/01/2020 19:12	Benjamin T. Nordmann	2167622
	03/25/2020	03/26/2020 17:15	Yen Ta	04/01/2020 19:13	Benjamin T. Nordmann	2167626
	03/25/2020	03/27/2020 16:50	Yen Ta	03/31/2020 18:43	Benjamin T. Nordmann	2167631
	03/25/2020	03/27/2020 16:50	Yen Ta	03/31/2020 18:47	Benjamin T. Nordmann	2167627
EPA 365.1 Rev. 2.0 dissolved	03/25/2020			03/25/2020 17:19	Julia Storbeck	2167623
	03/25/2020			03/25/2020 17:24	Julia Storbeck	2167619
	03/25/2020			03/25/2020 17:25	Julia Storbeck	2167620
	03/25/2020			03/25/2020 17:30	Julia Storbeck	2167632
	03/25/2020			03/25/2020 17:31	Julia Storbeck	2167628
	03/25/2020			03/25/2020 17:32	Julia Storbeck	2167629
EPA 8321B	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/26/2020 11:55	Mohammad Ghaffari	2167648
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/26/2020 12:09	Mohammad Ghaffari	2167649
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/26/2020 12:24	Mohammad Ghaffari	2167650
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/26/2020 19:22	Mohammad Ghaffari	2167648
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/26/2020 19:32	Mohammad Ghaffari	2167649
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/26/2020 19:43	Mohammad Ghaffari	2167650
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/27/2020 12:58	Mohammad Ghaffari	2167648
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/27/2020 13:10	Mohammad Ghaffari	2167649
	03/25/2020	03/26/2020 09:30	Mohammad Ghaffari	03/27/2020 13:22	Mohammad Ghaffari	2167650
	03/25/2020	03/30/2020 10:00	Hoor Shaik	04/07/2020 01:52	Juyoung Kim	2167648
	03/25/2020	03/30/2020 10:00	Hoor Shaik	04/07/2020 02:27	Juyoung Kim	2167649
	03/25/2020	03/30/2020 10:00	Hoor Shaik	04/07/2020 03:01	Juyoung Kim	2167650
SM 2120 B-2011	03/25/2020			03/25/2020 19:05	Madeline Gruver	2167615
	03/25/2020			03/25/2020 19:06	Madeline Gruver	2167616
	03/25/2020			03/25/2020 19:07	Madeline Gruver	2167621
	03/25/2020			03/25/2020 19:11	Madeline Gruver	2167624
	03/25/2020			03/25/2020 19:12	Madeline Gruver	2167625, 2167630
SM 2320 B-2011	03/25/2020			04/01/2020 01:49	Dale L. Simmons	2167615
	03/25/2020			04/01/2020 01:58	Dale L. Simmons	2167616
	03/25/2020			04/01/2020 02:15	Dale L. Simmons	2167621
	03/25/2020			04/01/2020 02:23	Dale L. Simmons	2167624
	03/25/2020			04/01/2020 02:32	Dale L. Simmons	2167625
SM 2340B	03/25/2020			04/01/2020 03:17	Dale L. Simmons	2167630
	03/25/2020			04/02/2020 13:39	Betina Topolski	2167654
	03/25/2020			04/02/2020 16:47	Betina Topolski	2167651
	03/25/2020			04/02/2020 16:53	Betina Topolski	2167652
SM 2540 C-2011	03/25/2020			04/02/2020 16:59	Betina Topolski	2167653
	03/25/2020			03/27/2020 15:36	Yijie Li	2167615, 2167616, 2167621, 2167624, 2167625, 2167630

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-2011	03/25/2020			03/27/2020 15:32	Yijie Li	2167615, 2167616, 2167621, 2167624, 2167625, 2167630
SM 4500 F-C-2011	03/25/2020			04/08/2020 23:32	Samantha Davila	2167615
	03/25/2020			04/08/2020 23:37	Samantha Davila	2167616
	03/25/2020			04/09/2020 00:39	Samantha Davila	2167621
	03/25/2020			04/09/2020 00:44	Samantha Davila	2167624
	03/25/2020			04/09/2020 00:49	Samantha Davila	2167625
SM 5310 B-2011	03/25/2020			04/09/2020 00:54	Samantha Davila	2167630
	03/25/2020			03/26/2020 20:09	Madeline Gruver	2167627
	03/25/2020			03/26/2020 22:47	Madeline Gruver	2167617
	03/25/2020			03/26/2020 22:59	Madeline Gruver	2167618
	03/25/2020			03/26/2020 23:11	Madeline Gruver	2167622
	03/25/2020			03/26/2020 23:23	Madeline Gruver	2167626
	03/25/2020			03/27/2020 00:02	Madeline Gruver	2167631