

Chemical Analysis Report

NW-DIST-2020-11-04-02

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-2020-10-26-23**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 25-NOV-2020 13:22

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

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 Below Nichols Creek Confluence Collection Date/Time: 11/03/2020 10:43

Field ID: G4NW0270

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206389	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P389753	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P389956	
		Sulfate	1.1		mg SO4/L	P389958	
	SM 2120 B-2011	Color (true)	110		PCU	P389757	
	SM 2320 B-2011	Total Alkalinity	8.3		mg CaCO3/L	P389921	
	SM 2540 C-2011	TDS	43		mg/L	P390170	
	SM 2540 D-2011	TSS	3	I	mg/L	P390147	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P390099	
2206391	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P389893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36		mg N/L	P389864	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.073		mg N/L	P389861	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P389802	
	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P389907	
2206393	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P389766	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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.

Sample Location: Shoal River Below Juniper Creek

Collection Date/Time: 11/03/2020 13:03

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206383	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P389753	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P389956	
		Sulfate	1.2		mg SO4/L	P389958	
	SM 2120 B-2011	Color (true)	75	A	PCU	P389757	
	SM 2320 B-2011	Total Alkalinity	3.4		mg CaCO3/L	P389921	
	SM 2540 C-2011	TDS	33		mg/L	P390169	
	SM 2540 D-2011	TSS	4	I	mg/L	P390146	
2206385	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P390099	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P389893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P389864	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P389861	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P389802	
2206387	SM 5310 B-2011	Organic Carbon	5.2		mg C/L	P389907	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389764	
2206407	EPA 8321B	2,4-D	0.0020	U	ug/L	P389732	
		Acesulfame K**	0.10	U	ug/L	P389773	MS
		AMPA**	0.10	U	ug/L	P389773	
		Sucralose**	0.13		ug/L	P389773	
		Acetaminophen**	0.0080	U	ug/L	P389732	
		Acetamiprid**	0.0020	U	ug/L	P389732	
		Endothall**	0.25	U	ug/L	P389773	
		Glufosinate**	0.10	U	ug/L	P389773	
		Glyphosate**	0.10	U	ug/L	P389773	
		Afidopyropen**	0.0020	U	ug/L	P389732	
		Bentazon	8.0E-04	U	ug/L	P389732	
		Benzovindiflupyr**	0.0020	U	ug/L	P389732	
		Carbamazepine**	8.0E-04	U	ug/L	P389732	
		Clothianidin**	0.0020	U	ug/L	P389732	
		Dinotefuran**	0.0020	U	ug/L	P389732	
		Diuron	0.0020	U	ug/L	P389732	
		Fenuron	0.016	U	ug/L	P389732	
		Fluridone**	8.0E-04	U	ug/L	P389732	
		Imazapyr**	0.0093	I	ug/L	P389732	
		Hydrocodone**	0.0020	U	ug/L	P389732	
		Ibuprofen**	0.020	U	ug/L	P389732	
		Imidacloprid	0.0032	I	ug/L	P389732	
		Linuron	0.0040	U	ug/L	P389732	
		Mandestrobin**	0.0020	U	ug/L	P389732	
		MCP	0.0020	U	ug/L	P389732	
		Naproxen**	0.0080	U	ug/L	P389732	
		Primidone**	0.0040	U	ug/L	P389732	
		Pyraclostrobin**	0.0020	U	ug/L	P389732	
		Thiamethoxam**	0.0020	U	ug/L	P389732	

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206407	EPA 8321B	Tolfenpyrad**	0.0020	UJ	ug/L	P389732	CCV
		Triclopyr**	0.0040	U	ug/L	P389732	
2206409	EPA 200.7 Rev. 4.4	Barium	13.1		ug/L	P389749	
		Calcium	1.88		mg/L	P389749	
		Iron	620		ug/L	P389749	
		Magnesium	0.85		mg/L	P389749	
		Potassium	0.55	I	mg/L	P389749	
		Sodium	2.2		mg/L	P389749	
		Zinc	5.0	U	ug/L	P389749	
	EPA 200.8 Rev. 5.4	Aluminum	178		ug/L	P389749	
		Antimony	0.050	U	ug/L	P389749	
		Arsenic	0.31		ug/L	P389749	
		Boron**	9.8		ug/L	P389749	
		Cadmium	0.020	U	ug/L	P389749	
		Chromium	0.40	U	ug/L	P389749	
		Copper	0.40	U	ug/L	P389749	
		Lead	0.21	I	ug/L	P389749	
		Nickel	0.50	U	ug/L	P389749	
		Selenium	0.20	U	ug/L	P389749	
		Silver	0.010	U	ug/L	P389749	
		Thallium	0.10	U	ug/L	P389749	
	SM 2340B	Hardness	8.2		mg/L	P389749	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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 8321B: MS accuracy and precision for bentazon could not be assessed due to high concentration of parameter in the spiked sample. MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Shoal River Upstream Bill Dugger Park Sr-85

Collection Date/Time: 11/03/2020 13:25

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206384	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P389753	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P389956	
		Sulfate	1.2		mg SO4/L	P389958	
	SM 2120 B-2011	Color (true)	75		PCU	P389757	
	SM 2320 B-2011	Total Alkalinity	3.5		mg CaCO3/L	P389921	
	SM 2540 C-2011	TDS	31		mg/L	P390170	
	SM 2540 D-2011	TSS	4	I	mg/L	P390147	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P390099	
2206386	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P389893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P389864	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P389861	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P389802	
	SM 5310 B-2011	Organic Carbon	5.3		mg C/L	P389907	
2206388	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389766	
2206408	EPA 8321B	2,4-D	0.0020	U	ug/L	P389732	
		Acesulfame K**	0.10	U	ug/L	P389773	MS
		AMPA**	0.10	U	ug/L	P389773	
		Sucralose**	0.15		ug/L	P389773	
		Acetaminophen**	0.0080	U	ug/L	P389732	
		Acetamiprid**	0.0020	U	ug/L	P389732	
		Endothall**	0.25	U	ug/L	P389773	
		Glufosinate**	0.10	U	ug/L	P389773	
		Glyphosate**	0.10	U	ug/L	P389773	
		Afidopyrophen**	0.0020	U	ug/L	P389732	
		Bentazon	8.0E-04	U	ug/L	P389732	
		Benzovindiflupyr**	0.0020	U	ug/L	P389732	
		Carbamazepine**	8.0E-04	U	ug/L	P389732	
		Clothianidin**	0.0020	U	ug/L	P389732	
		Dinotefuran**	0.0020	U	ug/L	P389732	
		Diuron	0.0020	U	ug/L	P389732	
		Fenuron	0.016	U	ug/L	P389732	
		Fluridone**	8.0E-04	U	ug/L	P389732	
		Imazapyr**	0.011	I	ug/L	P389732	
		Hydrocodone**	0.0020	U	ug/L	P389732	
		Ibuprofen**	0.020	U	ug/L	P389732	
		Imidacloprid	0.0033	I	ug/L	P389732	
		Linuron	0.0040	U	ug/L	P389732	
		Mandestrobin**	0.0020	U	ug/L	P389732	
		MCP	0.0020	U	ug/L	P389732	
		Naproxen**	0.0080	U	ug/L	P389732	
		Primidone**	0.0040	U	ug/L	P389732	
		Pyraclostrobin**	0.0020	U	ug/L	P389732	
		Thiamethoxam**	0.0020	U	ug/L	P389732	

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206408	EPA 8321B	Tolfenpyrad**	0.0020	UJ	ug/L	P389732	CCV
		Triclopyr**	0.0040	U	ug/L	P389732	
2206410	EPA 200.7 Rev. 4.4	Barium	13.0		ug/L	P389749	
		Calcium	1.86		mg/L	P389749	
		Iron	600		ug/L	P389749	
		Magnesium	0.81		mg/L	P389749	
		Potassium	0.56	I	mg/L	P389749	
		Sodium	2.0	I	mg/L	P389749	
		Zinc	5.0	U	ug/L	P389749	
	EPA 200.8 Rev. 5.4	Aluminum	188		ug/L	P389749	
		Antimony	0.050	U	ug/L	P389749	
		Arsenic	0.34		ug/L	P389749	
		Boron**	10.1		ug/L	P389749	
		Cadmium	0.020	U	ug/L	P389749	
		Chromium	0.40	U	ug/L	P389749	
		Copper	0.40	U	ug/L	P389749	
		Lead	0.22	I	ug/L	P389749	
		Nickel	0.50	U	ug/L	P389749	
		Selenium	0.20	U	ug/L	P389749	
		Silver	0.010	U	ug/L	P389749	
		Thallium	0.10	U	ug/L	P389749	
	SM 2340B	Hardness	8.0		mg/L	P389749	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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 8321B: MS accuracy and precision for bentazon could not be assessed due to high concentration of parameter in the spiked sample. MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Dead River Upstream Of Yellow River

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

Field ID: G4NW0408

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2206390	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P389753	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P389956	
		Sulfate	0.98		mg SO4/L	P389958	
		Color (true)	120		PCU	P389757	
	SM 2320 B-2011	Total Alkalinity	6.8		mg CaCO3/L	P389921	
	SM 2540 C-2011	TDS	47		mg/L	P390170	
	SM 2540 D-2011	TSS	2	I	mg/L	P390147	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P390099	
2206392	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P389893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43	J	mg N/L	P389864	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P389861	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P389802	
	SM 5310 B-2011	Organic Carbon	7.9		mg C/L	P389907	
2206394	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389766	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high 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: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389753

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P389749

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: P389749

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: P389956

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389958

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389893

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389864

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389861

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389802

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389764

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389766

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

Reference Method: EPA 8321B
Batch ID: P389732

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
MCP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P389732

Component	Result	Code	Units
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P389773

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

Reference Method: SM 2120 B-2011
Batch ID: P389757

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P389921

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

Reference Method: SM 2540 C-2011
Batch ID: P390169

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P390170

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P390146

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P390147

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389907

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: P389749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	95.4		P	85 - 115
Calcium	95.2		P	85 - 115
Iron	96.2		P	85 - 115
Magnesium	96.8		P	85 - 115
Potassium	94.4		P	85 - 115
Sodium	98.8		P	85 - 115
Zinc	93.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	102		P	85 - 115
Boron	102		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	100		P	85 - 115
Copper	98.3		P	85 - 115
Lead	92.7		P	85 - 115
Nickel	100		P	85 - 115
Selenium	100		P	85 - 115
Silver	102		P	85 - 115
Thallium	98.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389956

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389958

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	108		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P389861

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P389802

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: P389764

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P389766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P389732

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	60.8		P	30 - 160
Acetaminophen	54.2		P	30 - 160
Acetamiprid	71.9		P	30 - 160
Afidopyropen	51.4		P	30 - 160
Bentazon	41.8		P	30 - 160
Benzovindiflupyr	56.7		P	30 - 160
Carbamazepine	62.2		P	30 - 160
Clothianidin	88.4		P	30 - 160
Dinotefuran	82.3		P	30 - 160
Diuron	53.8		P	30 - 160
Fenuron	112		P	30 - 160
Fluridone	66.7		P	30 - 160
Hydrocodone	64.6		P	30 - 160
Ibuprofen	81.1		P	30 - 160
Imazapyr	78.6		P	30 - 160
Imidacloprid	86.5		P	30 - 160
Linuron	68.9		P	30 - 160
Mandestrobin	64.2		P	30 - 160
MCPP	65.9		P	30 - 160
Naproxen	48.6		P	30 - 160
Primidone	85.8		P	30 - 160
Pyraclostrobin	47.3		P	30 - 160
Thiamethoxam	83.2		P	30 - 160
Tolfenpyrad	33.7		P	30 - 160
Triclopyr	64.1		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P389773

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	102		P	40 - 150
AMPA	90.6		P	40 - 150
Endothall	89.2		P	40 - 150
Glufosinate	90.7		P	40 - 150
Glyphosate	102		P	40 - 140
Sucralose	102		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P389757

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

Reference Method: SM 2320 B-2011
Batch ID: P389921

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.4		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389907

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: P389749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206409	Barium	100	103	P/P	80 - 120
2206409	Calcium	94.7	100	P/P	80 - 120
2206409	Iron	101	104	P/P	80 - 120
2206409	Magnesium	101	104	P/P	80 - 120
2206409	Potassium	97.8	101	P/P	80 - 120
2206409	Sodium	95.5	96.4	P/P	80 - 120
2206409	Zinc	98.3	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P389749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206409	Aluminum	98.9	99.1	P/P	80 - 120
2206409	Antimony	102	101	P/P	80 - 120
2206409	Arsenic	104	101	P/P	80 - 120
2206409	Boron	103	102	P/P	80 - 120
2206409	Cadmium	104	103	P/P	80 - 120
2206409	Chromium	101	100	P/P	80 - 120
2206409	Copper	99.9	98.9	P/P	80 - 120
2206409	Lead	93.9	92.4	P/P	80 - 120
2206409	Nickel	101	100	P/P	80 - 120
2206409	Selenium	101	96.5	P/P	80 - 120
2206409	Silver	102	100	P/P	80 - 120
2206409	Thallium	99.3	100	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P389956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205350	Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P389958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205350	Sulfate	96.0		P	90 - 110
2206213	Sulfate	99.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P389893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206386	Ammonia-N	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P389864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206392	Kjeldahl Nitrogen	107	110	P/F	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P389861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206385	NO2NO3-N	95.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P389802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206252	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P389764

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206163	O-Phosphate-P	97.0	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P389766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206388	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P389732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206319	2,4-D	55.3	55.1	P/P	30 - 160
2206319	Acetaminophen	34.5	40.1	P/P	30 - 160
2206319	Acetamiprid	56.1	47.3	P/P	30 - 160
2206319	Afidopyropen	43.5	35.2	P/P	30 - 160
2206319	Benzovindiflupyr	54.1	53.0	P/P	30 - 160
2206319	Carbamazepine	54.0	47.3	P/P	30 - 160
2206319	Clothianidin	56.5	59.6	P/P	30 - 160
2206319	Dinotefuran	47.2	53.9	P/P	30 - 160
2206319	Diuron	36.5	35.9	P/P	30 - 160
2206319	Fenuron	60.4	57.8	P/P	30 - 160
2206319	Fluridone	61.3	56.5	P/P	30 - 160
2206319	Hydrocodone	55.6	62.6	P/P	30 - 160
2206319	Ibuprofen	68.0	55.2	P/P	30 - 160
2206319	Imazapyr	78.7	72.7	P/P	30 - 160
2206319	Linuron	65.8	63.1	P/P	30 - 160
2206319	Mandestrobin	59.1	58.4	P/P	30 - 160
2206319	MCCP	59.4	56.3	P/P	30 - 160
2206319	Naproxen	45.4	50.3	P/P	30 - 160
2206319	Primidone	66.7	72.9	P/P	30 - 160
2206319	Pyraclostrobin	48.5	47.3	P/P	30 - 160
2206319	Thiamethoxam	75.7	72.9	P/P	30 - 160
2206319	Tolfenpyrad	47.7	41.2	P/P	30 - 160
2206319	Triclopyr	47.7	51.8	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P389773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P389773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206287	Acesulfame K	19.8	19.6	F/F	40 - 150
2206287	AMPA	75.0	73.1	P/P	40 - 150
2206287	Endothall	92.7	94.1	P/P	40 - 150
2206287	Glufosinate	89.9	85.8	P/P	40 - 150
2206287	Glyphosate	82.5	81.6	P/P	40 - 140
2206287	Sucralose	116	105	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206538	Fluoride	97.6	98.8	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P389907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206165	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206343	Turbidity	6.99	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P389749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206409	Barium	2.66	Spike	P	0 - 20
2206409	Calcium	3.63	Spike	P	0 - 20
2206409	Iron	2.41	Spike	P	0 - 20
2206409	Magnesium	3.03	Spike	P	0 - 20
2206409	Potassium	2.73	Spike	P	0 - 20
2206409	Sodium	0.615	Spike	P	0 - 20
2206409	Zinc	3.26	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P389749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206409	Aluminum	0.196	Spike	P	0 - 20
2206409	Antimony	1.58	Spike	P	0 - 20
2206409	Arsenic	2.26	Spike	P	0 - 20
2206409	Boron	1.04	Spike	P	0 - 20
2206409	Cadmium	0.924	Spike	P	0 - 20
2206409	Chromium	1.41	Spike	P	0 - 20
2206409	Copper	1.07	Spike	P	0 - 20
2206409	Lead	1.54	Spike	P	0 - 20
2206409	Nickel	0.844	Spike	P	0 - 20
2206409	Selenium	4.89	Spike	P	0 - 20
2206409	Silver	2.28	Spike	P	0 - 20
2206409	Thallium	0.891	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205350	Chloride	0.739	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205350	Sulfate	0.680	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P389893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206386	Ammonia-N	0.613	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P389864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206392	Kjeldahl Nitrogen	2.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P389861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206385	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P389802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206252	Total-P	0.949	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P389764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206163	O-Phosphate-P	0.821	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P389766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206388	O-Phosphate-P	0.297	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P389732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206319	2,4-D	0.336	Spike	P	0 - 30
2206319	Acetaminophen	15.0	Spike	P	0 - 30
2206319	Acetamiprid	17.1	Spike	P	0 - 30
2206319	Afidopyropen	21.2	Spike	P	0 - 30
2206319	Benzovindiflupyr	2.13	Spike	P	0 - 30
2206319	Carbamazepine	9.73	Spike	P	0 - 30
2206319	Clothianidin	5.22	Spike	P	0 - 30
2206319	Dinotefuran	10.7	Spike	P	0 - 30
2206319	Diuron	1.69	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P389732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206319	Fenuron	4.43	Spike	P	0 - 30
2206319	Fluridone	6.37	Spike	P	0 - 30
2206319	Hydrocodone	11.9	Spike	P	0 - 30
2206319	Ibuprofen	20.7	Spike	P	0 - 30
2206319	Imazapyr	4.46	Spike	P	0 - 30
2206319	Imidacloprid	7.08	Spike	P	0 - 30
2206319	Linuron	4.08	Spike	P	0 - 30
2206319	Mandestrobin	1.23	Spike	P	0 - 30
2206319	MCPP	5.42	Spike	P	0 - 30
2206319	Naproxen	10.2	Spike	P	0 - 30
2206319	Primidone	6.47	Spike	P	0 - 30
2206319	Pyraclostrobin	2.60	Spike	P	0 - 30
2206319	Thiamethoxam	3.86	Spike	P	0 - 30
2206319	Tolfenpyrad	14.6	Spike	P	0 - 30
2206319	Triclopyr	8.26	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P389773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206287	Acesulfame K	0.976	Spike	P	0 - 30
2206287	AMPA	1.82	Spike	P	0 - 30
2206287	Endothall	1.45	Spike	P	0 - 30
2206287	Glufosinate	4.72	Spike	P	0 - 30
2206287	Glyphosate	0.575	Spike	P	0 - 30
2206287	Sucralose	9.43	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
 Batch ID: P389757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206383	Color (true)	0.0387	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P389921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206519	Total Alkalinity	0.478	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
 Batch ID: P390169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206164	TDS	7.85	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P390170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206981	TDS	4.95	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P390099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206538	Fluoride	0.984	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206165	Organic Carbon	0.0990	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2206407
Field Sample ID: G4NW0024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	58.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	53.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	57.8	P	30 - 160
EPA 8321B	Diuron-d6	51.8	P	30 - 160
EPA 8321B	Endothall-d6	94.6	P	30 - 160
EPA 8321B	Endothall-d6	94.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	80.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	80.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	58.6	P	30 - 160
EPA 8321B	Primidone-d5	81.6	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	30 - 160

Lab Sample ID: 2206408
Field Sample ID: G4NW0023

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	81.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	60.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.4	P	30 - 160
EPA 8321B	Diuron-d6	73.7	P	30 - 160
EPA 8321B	Endothall-d6	96.8	P	30 - 160
EPA 8321B	Endothall-d6	96.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	80.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	80.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	90.0	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	117	P	30 - 160
EPA 8321B	Sucralose-d6	117	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101959

Included Lab Sample IDs: 2206383, 2206384, 2206389, 2206390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	97.0	97.0	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A101960

Included Lab Sample IDs: 2206383, 2206384, 2206389, 2206390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101961

Included Lab Sample IDs: 2206387, 2206388, 2206393, 2206394

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102003

Included Lab Sample IDs: 2206409, 2206410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	103	P/P	90 - 110
Calcium	98.5	99.1	P/P	90 - 110
Iron	100	100	P/P	90 - 110
Magnesium	99.1	99.5	P/P	90 - 110
Potassium	98.8	97.8	P/P	90 - 110
Sodium	99.7	98.6	P/P	90 - 110
Zinc	104	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102008

Included Lab Sample IDs: 2206407, 2206408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	106	114	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102010

Included Lab Sample IDs: 2206385, 2206386, 2206391, 2206392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	96.5	P/P	90 - 110
NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102027

Included Lab Sample IDs: 2206385, 2206386, 2206391, 2206392

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102027

Included Lab Sample IDs: 2206385, 2206386, 2206391, 2206392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	98.2	99.9	P/P	90 - 110
Ammonia-N	99.9	99.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A102035

Included Lab Sample IDs: 2206385, 2206386, 2206391, 2206392

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

Reference Method: EPA 8321B

Run ID: A102036

Included Lab Sample IDs: 2206407, 2206408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	100	104	P/P	50 - 150
Acetaminophen	109	109	P/P	60 - 160
Acetamiprid	107	114	P/P	50 - 150
Afidopyropen	88.1	81.5	P/P	50 - 150
Bentazon	78.9	85.4	P/P	50 - 160
Benzovindiflupyr	105	108	P/P	50 - 150
Carbamazepine	92.1	93.0	P/P	60 - 150
Clothianidin	102	114	P/P	60 - 150
Dinotefuran	101	99.5	P/P	50 - 150
Diuron	80.8	87.0	P/P	60 - 160
Fenuron	111	113	P/P	60 - 150
Fluridone	96.1	99.1	P/P	60 - 160
Hydrocodone	109	109	P/P	60 - 150
Ibuprofen	87.2	97.9	P/P	50 - 160
Imazapyr	106	103	P/P	50 - 160
Imidacloprid	101	85.2	P/P	60 - 150
Linuron	89.6	100	P/P	60 - 150
Mandestrobin	95.5	97.2	P/P	50 - 150
MCPP	98.2	90.7	P/P	50 - 150
Naproxen	90.9	130	P/P	50 - 160
Primidone	102	109	P/P	60 - 150
Pyraclostrobin	105	111	P/P	60 - 150
Thiamethoxam	108	104	P/P	50 - 150
Tolfenpyrad	150	151*	P/F	60 - 150
Triclopyr	86.7	93.3	P/P	50 - 150

Reference Method: SM 2320 B-2011

Run ID: A102049

Included Lab Sample IDs: 2206383, 2206384, 2206389, 2206390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.0	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A102055

Included Lab Sample IDs: 2206407, 2206408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	93.2	88.6	P/P	50 - 160
Glufosinate	94.8	95.9	P/P	50 - 160
Glyphosate	101	105	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A102056

Included Lab Sample IDs: 2206407, 2206408

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	122	101	P/P	50 - 160
Endothall	102	102	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102057

Included Lab Sample IDs: 2206385, 2206386, 2206391, 2206392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102065

Included Lab Sample IDs: 2206383, 2206384, 2206389, 2206390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	100	P/P	90 - 110
Chloride	99.8	99.5	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102068

Included Lab Sample IDs: 2206385, 2206386, 2206391, 2206392

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	98.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102117

Included Lab Sample IDs: 2206409, 2206410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	95.6	97.4	P/P	90 - 110
Aluminum	95.8	95.6	P/P	90 - 110
Antimony	97.8	97.9	P/P	90 - 110
Antimony	97.9	97.0	P/P	90 - 110
Arsenic	97.4	99.0	P/P	90 - 110
Arsenic	98.6	97.4	P/P	90 - 110
Boron	102	104	P/P	90 - 110
Boron	102	102	P/P	90 - 110
Cadmium	98.1	97.5	P/P	90 - 110
Cadmium	98.3	98.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102117

Included Lab Sample IDs: 2206409, 2206410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	93.6	93.8	P/P	90 - 110
Chromium	93.8	97.8	P/P	90 - 110
Copper	93.5	101	P/P	90 - 110
Copper	93.9	93.5	P/P	90 - 110
Lead	90.8	90.1	P/P	90 - 110
Lead	91.5	90.8	P/P	90 - 110
Nickel	94.5	94.8	P/P	90 - 110
Nickel	94.8	101	P/P	90 - 110
Selenium	97.1	95.6	P/P	90 - 110
Selenium	97.5	97.1	P/P	90 - 110
Silver	103	103	P/P	90 - 110
Silver	104	103	P/P	90 - 110
Thallium	91.6	90.1	P/P	90 - 110
Thallium	92.0	91.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102147

Included Lab Sample IDs: 2206383, 2206384, 2206389, 2206390

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	96.5	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					6.99	
EPA 200.7 Rev. 4.4	Barium	95.4	100	103			2.66
	Calcium	95.2	94.7	100			3.63
	Iron	96.2	101	104			2.41
	Magnesium	96.8	101	104			3.03
	Potassium	94.4	97.8	101			2.73
	Sodium	98.8	95.5	96.4			0.615
	Zinc	93.7	98.3	102			3.26
EPA 200.8 Rev. 5.4	Aluminum	101	98.9	99.1			0.196
	Antimony	102	102	101			1.58
	Arsenic	102	104	101			2.26
	Boron	102	103	102			1.04
	Cadmium	103	104	103			0.924
	Chromium	100	101	100			1.41
	Copper	98.3	99.9	98.9			1.07
	Lead	92.7	93.9	92.4			1.54
	Nickel	100	101	100			0.844
	Selenium	100	101	96.5			4.89
	Silver	102	102	100			2.28
	Thallium	98.2	99.3	100			0.891
EPA 300.0 Rev. 2.1	Chloride	100	99.1			0.739	
	Sulfate	101	96.0	99.1		0.680	
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	104			0.613
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	107	110			2.16
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	95.8				0.0
EPA 365.1 Rev. 2.0	Total-P	104	104	105			0.949
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	97.0	97.8			0.821
	O-Phosphate-P	99.6	101	101			0.297
EPA 8321B	2,4-D	60.8	55.3	55.1			0.336
	Acesulfame K	102	19.8	19.6			0.976
	Acetaminophen	54.2	40.1	34.5			15.0
	Acetamiprid	71.9	47.3	56.1			17.1
	Afidopyropen	51.4	43.5	35.2			21.2
	AMPA	90.6	75.0	73.1			1.82
	Bentazon	41.8					
	Benzovindiflupyr	56.7	54.1	53.0			2.13
	Carbamazepine	62.2	47.3	54.0			9.73
	Clothianidin	88.4	59.6	56.5			5.22
	Dinotefuran	82.3	53.9	47.2			10.7
	Diuron	53.8	36.5	35.9			1.69
	Endothall	89.2	92.7	94.1			1.45
	Fenuron	112	57.8	60.4			4.43
	Fluridone	66.7	61.3	56.5			6.37
	Glufosinate	90.7	89.9	85.8			4.72
	Glyphosate	102	82.5	81.6			0.575
	Hydrocodone	64.6	62.6	55.6			11.9
	Ibuprofen	81.1	68.0	55.2			20.7
	Imazapyr	78.6	78.7	72.7			4.46
	Imidacloprid	86.5					7.08
	Linuron	68.9	65.8	63.1			4.08
	Mandestrobin	64.2	59.1	58.4			1.23
	MCPP	65.9	59.4	56.3			5.42
	Naproxen	48.6	45.4	50.3			10.2
	Primidone	85.8	72.9	66.7			6.47

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Pyraclostrobin	47.3	48.5	47.3		2.60
	Sucralose	102	116	105		9.43
	Thiamethoxam	83.2	72.9	75.7		3.86
	Tolfenpyrad	33.7	47.7	41.2		14.6
	Triclopyr	64.1	47.7	51.8		8.26
SM 2120 B-2011	Color (true)	103			0.0387	
SM 2320 B-2011	Total Alkalinity	99.9			0.478	
SM 2540 C-2011	TDS				7.85	
	TDS				4.95	
SM 4500 F-C-2011	Fluoride	94.4	97.6	98.8		0.984
SM 5310 B-2011	Organic Carbon	101	103	103		0.0990

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2206383, 2206384, 2206389, 2206390
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2206409, 2206410
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2206409, 2206410
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2206383, 2206384, 2206389, 2206390
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2206383, 2206384, 2206389, 2206390
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2206385, 2206386, 2206391, 2206392
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2206385, 2206386, 2206391, 2206392
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2206385, 2206386, 2206391, 2206392
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2206385, 2206386, 2206391, 2206392
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2206387, 2206388, 2206393, 2206394
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2206407, 2206408
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2206407, 2206408
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2206383, 2206384, 2206389, 2206390
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2206383, 2206384, 2206389, 2206390
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2206409, 2206410
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2206383, 2206384, 2206389, 2206390
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2206383, 2206384, 2206389, 2206390
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2206383, 2206384, 2206389, 2206390
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2206385, 2206386, 2206391, 2206392

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	11/04/2020			11/04/2020 15:13	Yen Ta	2206383, 2206384, 2206389, 2206390
EPA 200.7 Rev. 4.4	11/04/2020	11/04/2020 15:10	Elliott D. Healy	11/05/2020 18:57	Betina Topolski	2206409
	11/04/2020	11/04/2020 15:10	Elliott D. Healy	11/05/2020 19:23	Betina Topolski	2206410
EPA 200.8 Rev. 5.4	11/04/2020	11/04/2020 15:10	Elliott D. Healy	11/12/2020 22:37	Alexander Thompson	2206409
	11/04/2020	11/04/2020 15:10	Elliott D. Healy	11/12/2020 23:45	Alexander Thompson	2206410
EPA 300.0 Rev. 2.1	11/04/2020			11/10/2020 04:44	Lipi Saha	2206384
	11/04/2020			11/10/2020 07:08	Lipi Saha	2206383
	11/04/2020			11/10/2020 07:21	Lipi Saha	2206389
	11/04/2020			11/10/2020 07:34	Lipi Saha	2206390
EPA 350.1 Rev. 2.0	11/04/2020			11/07/2020 11:56	Ping Hua	2206386
	11/04/2020			11/07/2020 12:05	Ping Hua	2206391
	11/04/2020			11/07/2020 12:17	Ping Hua	2206392
	11/04/2020			11/07/2020 14:30	Ping Hua	2206385
EPA 351.2 Rev. 2.0	11/04/2020	11/06/2020 12:50	David Boose	11/09/2020 13:00	Elliott Rodriguez	2206392
	11/04/2020	11/06/2020 12:50	David Boose	11/09/2020 13:07	Elliott Rodriguez	2206385
	11/04/2020	11/06/2020 12:50	David Boose	11/09/2020 13:09	Elliott Rodriguez	2206386
	11/04/2020	11/06/2020 12:50	David Boose	11/09/2020 13:10	Elliott Rodriguez	2206391
EPA 353.2 Rev. 2.0	11/04/2020			11/06/2020 10:28	Beverly Y. Sanders	2206385
	11/04/2020			11/06/2020 10:34	Beverly Y. Sanders	2206386
	11/04/2020			11/06/2020 10:36	Beverly Y. Sanders	2206392
	11/04/2020			11/06/2020 11:31	Beverly Y. Sanders	2206391
EPA 365.1 Rev. 2.0	11/04/2020	11/05/2020 12:58	Yen Ta	11/10/2020 11:26	Shengyu Wang	2206385
	11/04/2020	11/05/2020 12:58	Yen Ta	11/10/2020 11:27	Shengyu Wang	2206386
	11/04/2020	11/05/2020 12:58	Yen Ta	11/10/2020 11:28	Shengyu Wang	2206391
	11/04/2020	11/05/2020 12:58	Yen Ta	11/10/2020 11:29	Shengyu Wang	2206392
EPA 365.1 Rev. 2.0 dissolved	11/04/2020			11/04/2020 17:36	Ping Hua	2206388
	11/04/2020			11/04/2020 17:50	Ping Hua	2206387
	11/04/2020			11/04/2020 17:55	Ping Hua	2206393
	11/04/2020			11/04/2020 18:00	Ping Hua	2206394
EPA 8321B	11/04/2020	11/05/2020 09:00	Hoor Shaik	11/06/2020 13:25	Juyoung Kim	2206407
	11/04/2020	11/05/2020 09:00	Hoor Shaik	11/06/2020 14:00	Juyoung Kim	2206408
	11/04/2020	11/05/2020 10:00	Rebecca Ware	11/05/2020 15:04	Rebecca Ware	2206407
	11/04/2020	11/05/2020 10:00	Rebecca Ware	11/05/2020 15:15	Rebecca Ware	2206408
	11/04/2020	11/05/2020 10:00	Rebecca Ware	11/06/2020 14:52	Rebecca Ware	2206407
	11/04/2020	11/05/2020 10:00	Rebecca Ware	11/06/2020 15:06	Rebecca Ware	2206408
	11/04/2020	11/05/2020 10:00	Rebecca Ware	11/06/2020 19:26	Rebecca Ware	2206407
	11/04/2020	11/05/2020 10:00	Rebecca Ware	11/06/2020 19:37	Rebecca Ware	2206408
SM 2120 B-2011	11/04/2020			11/04/2020 16:31	Benjamin T. Nordmann	2206383
	11/04/2020			11/04/2020 16:32	Benjamin T. Nordmann	2206384
	11/04/2020			11/04/2020 16:33	Benjamin T. Nordmann	2206389

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B-2011	11/04/2020			11/04/2020 16:34	Benjamin T. Nordmann	2206390
SM 2320 B-2011	11/04/2020			11/07/2020 02:40	Dale L. Simmons	2206383
	11/04/2020			11/07/2020 02:50	Dale L. Simmons	2206384
	11/04/2020			11/07/2020 03:02	Dale L. Simmons	2206389
	11/04/2020			11/07/2020 03:14	Dale L. Simmons	2206390
SM 2340B	11/04/2020			11/05/2020 18:57	Betina Topolski	2206409
	11/04/2020			11/05/2020 19:23	Betina Topolski	2206410
SM 2540 C-2011	11/04/2020			11/09/2020 13:51	Yijie Li	2206383, 2206384, 2206389, 2206390
SM 2540 D-2011	11/04/2020			11/09/2020 13:51	Yijie Li	2206383, 2206384, 2206389, 2206390
SM 4500 F-C-2011	11/04/2020			11/13/2020 17:51	Dale L. Simmons	2206383
	11/04/2020			11/13/2020 17:56	Dale L. Simmons	2206384
	11/04/2020			11/13/2020 18:01	Dale L. Simmons	2206389
	11/04/2020			11/13/2020 18:06	Dale L. Simmons	2206390
SM 5310 B-2011	11/04/2020			11/06/2020 18:40	Touraj Touran	2206385
	11/04/2020			11/06/2020 19:17	Touraj Touran	2206386
	11/04/2020			11/06/2020 19:29	Touraj Touran	2206391
	11/04/2020			11/06/2020 19:41	Touraj Touran	2206392