

Chemical Analysis Report

NW-DIST-2021-07-23-01

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

Event Description: **Escambia Bay Whaler Run**
Request ID: **RQ-2021-07-19-22**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 Government Center
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-AUG-2021 11:28

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: Bayou Texar near Baars Park

Collection Date/Time: 07/22/2021 09:40

Field ID: G4NW0516

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264759	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P401500	
	SM 2320 B-2011	Total Alkalinity	22		mg CaCO3/L	P401614	
	SM 2540 D-2011	TSS	3	IA	mg/L	P401966	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P401616	
2264761	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P402061	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P402350	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.76		mg N/L	P401626	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	2.6		mg C/L	P402026	
2264763	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401483	
2264783	EPA 8321B	2,4-D	0.0092		ug/L	P401377	
		Acesulfame K	0.10	U	ug/L	P401371	
		2,4,5-T	0.0040	U	ug/L	P401377	
		AMPA	0.10	U	ug/L	P401371	
		Acetaminophen	0.0080	U	ug/L	P401377	
		Acetamiprid	0.0020	U	ug/L	P401377	
		Endothall	0.25	U	ug/L	P401371	
		Glufosinate	0.10	U	ug/L	P401371	
		Glyphosate	0.10	U	ug/L	P401371	
		Afidopyropen	0.0020	U	ug/L	P401377	
		Bentazon	0.0012	I	ug/L	P401377	
		Sucralose	0.22		ug/L	P401371	
		Benzovindiflupyr	0.0020	U	ug/L	P401377	
		Carbamazepine	0.0015	I	ug/L	P401377	
		Clothianidin	0.0020	U	ug/L	P401377	
		Dinotefuran	0.0020	U	ug/L	P401377	
		Diuron	0.0020	U	ug/L	P401377	
		Fenuron	0.016	U	ug/L	P401377	
		Fluridone	8.0E-04	U	ug/L	P401377	
		Imazapyr	0.011	I	ug/L	P401377	
		Hydrocodone	0.0020	U	ug/L	P401377	
		Ibuprofen	0.020	U	ug/L	P401377	
		Imidacloprid	0.029		ug/L	P401377	
		Linuron	0.0040	U	ug/L	P401377	
		Mandestrobin	0.0020	U	ug/L	P401377	
		MCP	0.0020	U	ug/L	P401377	
		Naproxen	0.0080	U	ug/L	P401377	
		Primidone	0.0040	U	ug/L	P401377	
		Pyraclostrobin	0.0020	U	ug/L	P401377	
		Thiamethoxam	0.0020	U	ug/L	P401377	
		Tolfenpyrad	0.0020	U	ug/L	P401377	
		Triclopyr	0.0040	U	ug/L	P401377	
2264785	EPA 200.7 Rev. 4.4	Calcium	9.24		mg/L	P401584	

Field ID: G4NW0516

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264785	EPA 200.7 Rev. 4.4	Iron	590		ug/L	P401584	
		Magnesium	2.21		mg/L	P401584	
		Manganese	30.7		ug/L	P401584	
		Zinc	9.9	I	ug/L	P401584	
	EPA 200.8 Rev. 5.4	Aluminum	81		ug/L	P401584	
		Antimony	0.091	I	ug/L	P401584	
		Arsenic	0.43		ug/L	P401584	
		Beryllium	0.017	I	ug/L	P401584	
		Cadmium	0.024	I	ug/L	P401584	
		Chromium	0.40	U	ug/L	P401584	
		Copper	0.40	U	ug/L	P402150	
		Lead	0.43		ug/L	P401584	
		Nickel	0.50	U	ug/L	P401584	
		Selenium	0.25	I	ug/L	P401584	
		Silver	0.010	U	ug/L	P401584	
		Thallium	0.10	U	ug/L	P401584	

Ref. Method and Comment:

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

Sample Location: Bayou Texar 200 Meters above Hwy 90 Bridge Collection Date/Time: 07/22/2021 10:05

Field ID: G4NW0402

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264760	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P401500	
	SM 2320 B-2011	Total Alkalinity	34		mg CaCO3/L	P401614	
	SM 2540 D-2011	TSS	5	I	mg/L	P401966	
	SM 4500 F-C-2011	Fluoride	0.35		mg F/L	P401616	
2264762	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P402061	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P402350	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P401626	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	3.6		mg C/L	P402026	
2264764	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401483	
2264784	EPA 8321B	2,4-D	0.0091		ug/L	P401377	
		Acesulfame K	0.10	U	ug/L	P401371	
		2,4,5-T	0.0040	U	ug/L	P401377	
		AMPA	0.10	U	ug/L	P401371	
		Acetaminophen	0.011	I	ug/L	P401377	
		Acetamiprid	0.0020	U	ug/L	P401377	
		Endothall	0.25	U	ug/L	P401371	
		Glufosinate	0.10	U	ug/L	P401371	
		Glyphosate	0.10	U	ug/L	P401371	
		Afidopyropen	0.0020	U	ug/L	P401377	
		Bentazon	0.0013	I	ug/L	P401377	
		Sucralose	0.12		ug/L	P401371	
		Benzovindiflupyr	0.0020	U	ug/L	P401377	
		Carbamazepine	8.0E-04	U	ug/L	P401377	
		Clothianidin	0.0020	U	ug/L	P401377	
		Dinotefuran	0.0020	U	ug/L	P401377	
		Diuron	0.0055	I	ug/L	P401377	
		Fenuron	0.016	U	ug/L	P401377	
		Fluridone	8.0E-04	U	ug/L	P401377	
		Imazapyr	0.021		ug/L	P401377	
		Hydrocodone	0.0020	U	ug/L	P401377	
		Ibuprofen	0.020	U	ug/L	P401377	
		Imidacloprid	0.017		ug/L	P401377	
		Linuron	0.0040	U	ug/L	P401377	
		Mandestrobin	0.0020	U	ug/L	P401377	
		MCP	0.0020	U	ug/L	P401377	
		Naproxen	0.0080	U	ug/L	P401377	
		Primidone	0.0040	U	ug/L	P401377	
		Pyraclostrobin	0.0020	U	ug/L	P401377	
		Thiamethoxam	0.0020	U	ug/L	P401377	
		Tolfenpyrad	0.0020	U	ug/L	P401377	
		Triclopyr	0.0040	U	ug/L	P401377	
2264786	EPA 200.7 Rev. 4.4	Calcium	50.2		mg/L	P401584	

Field ID: G4NW0402

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264786	EPA 200.7 Rev. 4.4	Iron	180		ug/L	P401584	
		Magnesium	146		mg/L	P401584	
		Manganese	31.2		ug/L	P401584	
		Zinc	7.4	I	ug/L	P401584	
	EPA 200.8 Rev. 5.4	Aluminum	134		ug/L	P401584	
		Antimony	0.11	I	ug/L	P401584	
		Arsenic	1.44		ug/L	P401584	
		Beryllium	0.017	I	ug/L	P401584	
		Cadmium	0.020	U	ug/L	P401584	
		Chromium	0.40	U	ug/L	P401584	
		Copper	0.40	U	ug/L	P402150	
		Lead	0.61		ug/L	P401584	
		Nickel	0.53	I	ug/L	P401584	
		Selenium	0.20	U	ug/L	P401584	
		Silver	0.010	U	ug/L	P401584	
		Thallium	0.10	U	ug/L	P401584	

Ref. Method and Comment:

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

Sample Location: Trout Bayou

Collection Date/Time: 07/22/2021 11:30

Field ID: G4NW0443

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264753	EPA 180.1 Rev. 2.0	Turbidity	9.8	A	NTU	P401500	
	SM 2320 B-2011	Total Alkalinity	27		mg CaCO3/L	P401614	
	SM 2540 D-2011	TSS	11		mg/L	P401965	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P401616	
2264755	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P402061	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P402350	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P401626	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	6.6		mg C/L	P402026	
2264757	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401483	

Sample Location: Judges Bayou Mouth

Collection Date/Time: 07/22/2021 12:00

Field ID: G4NW0441

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264754	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P401500	
	SM 2320 B-2011	Total Alkalinity	22	A	mg CaCO3/L	P401614	
	SM 2540 D-2011	TSS	11		mg/L	P401965	
	SM 4500 F-C-2011	Fluoride	0.062	I	mg F/L	P401616	
2264756	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P402061	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P402350	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P401626	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	9.2		mg C/L	P402026	
2264758	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P401483	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401500

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P401584

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P401584

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	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 200.8 Rev. 5.4
Batch ID: P402150

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402061

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402350

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401626

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P402010

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P401483

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

Reference Method: EPA 8321B

Batch ID: P401371

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: P401377

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P401614

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

Reference Method: SM 2540 D-2011
Batch ID: P401965

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P401966

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401616

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402026

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: P401584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	97.1		P	85 - 115
Magnesium	99.9		P	85 - 115
Manganese	93.6		P	85 - 115
Zinc	95.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	94.3		P	85 - 115
Antimony	95.4		P	85 - 115
Arsenic	94.0		P	85 - 115
Beryllium	95.8		P	85 - 115
Cadmium	91.8		P	85 - 115
Chromium	91.2		P	85 - 115
Lead	92.8		P	85 - 115
Nickel	94.3		P	85 - 115
Selenium	92.9		P	85 - 115
Silver	113		P	85 - 115
Thallium	95.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	95.6		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P402061

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P402350

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P401626

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P402010

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401483

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

Reference Method: EPA 8321B
Batch ID: P401371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	81.5		P	40 - 150
AMPA	97.5		P	40 - 150
Endothall	80.8		P	40 - 150
Glufosinate	101		P	40 - 150
Glyphosate	103		P	40 - 150
Sucralose	84.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P401377

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	138		P	30 - 160
2,4,5-T	146		P	30 - 160
Acetaminophen	94.2		P	30 - 160
Acetamiprid	99.1		P	30 - 160
Afidopyropen	64.8		P	30 - 160
Bentazon	98.9		P	30 - 160
Benzovindiflupyr	107		P	30 - 160
Carbamazepine	112		P	30 - 160
Clothianidin	116		P	30 - 160
Dinotefuran	114		P	30 - 160
Diuron	110		P	30 - 160
Fenuron	112		P	30 - 160
Fluridone	99.1		P	30 - 160
Hydrocodone	115		P	30 - 160
Ibuprofen	116		P	30 - 160
Imazapyr	146		P	30 - 160
Imidacloprid	114		P	30 - 160
Linuron	99.5		P	30 - 160
Mandestrobin	105		P	30 - 160
MCPP	143		P	30 - 160
Naproxen	92.4		P	30 - 160
Primidone	121		P	30 - 160
Pyraclostrobin	95.9		P	30 - 160
Thiamethoxam	116		P	30 - 160
Tolfenpyrad	56.9		P	30 - 160
Triclopyr	149		P	30 - 160

Reference Method: SM 2320 B-2011
Batch ID: P401614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P401616

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402026

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P401584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263597	Calcium	103		P	80 - 120
2263597	Iron	96.7		P	80 - 120
2263597	Magnesium	104		P	80 - 120
2263597	Manganese	90.5		P	80 - 120
2263597	Zinc	90.4		P	80 - 120
2264182	Calcium	102		P	80 - 120
2264182	Iron	96.9	95.5	P/P	80 - 120
2264182	Magnesium	95.4	93.7	P/P	80 - 120
2264182	Manganese	93.3	91.1	P/P	80 - 120
2264182	Zinc	93.4	91.0	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263597	Aluminum	93.3		P	80 - 120
2263597	Antimony	97.4		P	80 - 120
2263597	Arsenic	91.9		P	80 - 120
2263597	Beryllium	95.4		P	80 - 120
2263597	Cadmium	94.0		P	80 - 120
2263597	Chromium	93.0		P	80 - 120
2263597	Lead	92.3		P	80 - 120
2263597	Nickel	89.6		P	80 - 120
2263597	Selenium	89.7		P	80 - 120
2263597	Silver	113		P	80 - 120
2263597	Thallium	95.4		P	80 - 120
2264182	Aluminum	92.3	93.8	P/P	80 - 120
2264182	Antimony	95.4	96.5	P/P	80 - 120
2264182	Arsenic	90.5	91.3	P/P	80 - 120
2264182	Beryllium	96.6	96.9	P/P	80 - 120
2264182	Cadmium	91.4	91.5	P/P	80 - 120
2264182	Chromium	92.6	93.3	P/P	80 - 120
2264182	Lead	90.9	92.5	P/P	80 - 120
2264182	Nickel	89.9	91.4	P/P	80 - 120
2264182	Selenium	89.8	88.9	P/P	80 - 120
2264182	Silver	112	113	P/P	80 - 120
2264182	Thallium	94.6	97.2	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2263999	Copper	95.6	97.6	P/P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P402061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264776	Ammonia-N	98.6	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264571	Kjeldahl Nitrogen	113	111	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264682	NO2NO3-N	99.6	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267233	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264779	O-Phosphate-P	92.2	92.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P401371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264038	Acesulfame K	112	109	P/P	40 - 150
2264038	AMPA	90.3	92.0	P/P	40 - 150
2264038	Endothall	97.8	98.1	P/P	40 - 150
2264038	Glufosinate	112	115	P/P	40 - 150
2264038	Glyphosate	87.5	91.3	P/P	40 - 150
2264038	Sucralose	85.9	85.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P401377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264038	2,4-D	99.6	111	P/P	30 - 160
2264038	2,4,5-T	114	114	P/P	30 - 160
2264038	Acetaminophen	83.6	78.2	P/P	30 - 160
2264038	Acetamiprid	93.7	92.0	P/P	30 - 160
2264038	Afidopyropen	58.8	58.4	P/P	30 - 160
2264038	Bentazon	71.1	75.1	P/P	30 - 160
2264038	Benzovindiflupyr	94.9	92.4	P/P	30 - 160
2264038	Carbamazepine	101	106	P/P	30 - 160
2264038	Clothianidin	111	109	P/P	30 - 160
2264038	Dinotefuran	115	113	P/P	30 - 160
2264038	Diuron	87.5	86.7	P/P	30 - 160
2264038	Fenuron	90.9	89.3	P/P	30 - 160
2264038	Fluridone	82.7	83.1	P/P	30 - 160
2264038	Hydrocodone	114	112	P/P	30 - 160
2264038	Ibuprofen	100	96.0	P/P	30 - 160
2264038	Imazapyr	104	102	P/P	30 - 160
2264038	Imidacloprid	132	133	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P401377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264038	Linuron	85.4	85.7	P/P	30 - 160
2264038	Mandestrobin	94.6	92.8	P/P	30 - 160
2264038	MCPP	119	122	P/P	30 - 160
2264038	Naproxen	81.4	81.9	P/P	30 - 160
2264038	Primidone	119	119	P/P	30 - 160
2264038	Pyraclostrobin	85.0	82.3	P/P	30 - 160
2264038	Thiamethoxam	136	132	P/P	30 - 160
2264038	Tolfenpyrad	56.1	55.3	P/P	30 - 160
2264038	Triclopyr	119	120	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P401616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264754	Fluoride	98.6	99.1	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P402026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264683	Organic Carbon	95.9	97.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P401500

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264753	Turbidity	0.409	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P401584

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264182	Calcium	0.568	Spike	P	0 - 20
2264182	Iron	1.44	Spike	P	0 - 20
2264182	Magnesium	0.956	Spike	P	0 - 20
2264182	Manganese	2.40	Spike	P	0 - 20
2264182	Zinc	2.54	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P401584

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264182	Aluminum	1.67	Spike	P	0 - 20
2264182	Antimony	1.15	Spike	P	0 - 20
2264182	Arsenic	0.906	Spike	P	0 - 20
2264182	Beryllium	0.373	Spike	P	0 - 20
2264182	Cadmium	0.155	Spike	P	0 - 20
2264182	Chromium	0.744	Spike	P	0 - 20
2264182	Lead	1.82	Spike	P	0 - 20
2264182	Nickel	1.60	Spike	P	0 - 20
2264182	Selenium	0.997	Spike	P	0 - 20
2264182	Silver	1.03	Spike	P	0 - 20
2264182	Thallium	2.71	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402150

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2263999	Copper	1.88	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P402061

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264776	Ammonia-N	0.184	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P402350

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264571	Kjeldahl Nitrogen	1.21	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P401626

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264682	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P402010

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267233	Total-P	0.955	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P401483

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264779	O-Phosphate-P	0.217	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P401371

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264038	Acesulfame K	2.68	Spike	P	0 - 30
2264038	AMPA	1.84	Spike	P	0 - 30
2264038	Endothall	0.314	Spike	P	0 - 30
2264038	Glufosinate	2.69	Spike	P	0 - 30
2264038	Glyphosate	4.33	Spike	P	0 - 30
2264038	Sucralose	0.381	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P401377

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264038	2,4-D	5.86	Spike	P	0 - 30
2264038	2,4,5-T	0.503	Spike	P	0 - 30
2264038	Acetaminophen	5.92	Spike	P	0 - 30
2264038	Acetamiprid	1.83	Spike	P	0 - 30
2264038	Afidopyropen	0.745	Spike	P	0 - 30
2264038	Bentazon	3.06	Spike	P	0 - 30
2264038	Benzovindiflupyr	2.64	Spike	P	0 - 30
2264038	Carbamazepine	4.13	Spike	P	0 - 30
2264038	Clothianidin	1.83	Spike	P	0 - 30
2264038	Dinotefuran	1.78	Spike	P	0 - 30
2264038	Diuron	0.999	Spike	P	0 - 30
2264038	Fenuron	1.70	Spike	P	0 - 30
2264038	Fluridone	0.469	Spike	P	0 - 30
2264038	Hydrocodone	1.43	Spike	P	0 - 30
2264038	Ibuprofen	4.29	Spike	P	0 - 30
2264038	Imazapyr	2.08	Spike	P	0 - 30
2264038	Imidacloprid	0.413	Spike	P	0 - 30
2264038	Linuron	0.437	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P401377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264038	Mandestrobin	1.83	Spike	P	0 - 30
2264038	MCP	2.97	Spike	P	0 - 30
2264038	Naproxen	0.566	Spike	P	0 - 30
2264038	Primidone	0.407	Spike	P	0 - 30
2264038	Pyraclostrobin	3.16	Spike	P	0 - 30
2264038	Thiamethoxam	3.15	Spike	P	0 - 30
2264038	Tolfenpyrad	1.47	Spike	P	0 - 30
2264038	Triclopyr	1.13	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
 Batch ID: P401614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264754	Total Alkalinity	3.65	Sample	P	0 - 5.2

Reference Method: SM 2540 D-2011
 Batch ID: P401965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264580	TSS	2.67	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P401616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264754	Fluoride	0.472	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
 Batch ID: P402026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264683	Organic Carbon	0.900	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2264783

Field Sample ID: G4NW0516

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	87.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	105	P	30 - 160
EPA 8321B	Diuron-d6	79.8	P	30 - 160
EPA 8321B	Endothall-d6	91.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	64.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	87.7	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	80.0	P	30 - 160

Lab Sample ID: 2264784

Field Sample ID: G4NW0402

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	98.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	115	P	30 - 160
EPA 8321B	Diuron-d6	88.2	P	30 - 160
EPA 8321B	Endothall-d6	84.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	34.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	93.4	P	30 - 160
EPA 8321B	Primidone-d5	119	P	30 - 160
EPA 8321B	Sucralose-d6	84.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A106768

Included Lab Sample IDs: 2264783, 2264784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	97.1	P/P	50 - 150
2,4,5-T	106	101	P/P	50 - 150
Acetaminophen	122	122	P/P	60 - 160
Acetamiprid	107	106	P/P	50 - 150
Afidopyropen	112	117	P/P	50 - 150
Bentazon	96.4	97.5	P/P	50 - 160
Benzovindiflupyr	114	111	P/P	50 - 160
Carbamazepine	117	115	P/P	60 - 150
Clothianidin	110	106	P/P	60 - 150
Dinotefuran	113	110	P/P	50 - 150
Diuron	127	126	P/P	60 - 160
Fenuron	109	107	P/P	60 - 150
Fluridone	101	104	P/P	60 - 160
Hydrocodone	116	115	P/P	60 - 150
Ibuprofen	112	110	P/P	50 - 160
Imazapyr	114	116	P/P	50 - 160
Imidacloprid	104	103	P/P	60 - 150
Linuron	114	111	P/P	60 - 150
Mandestrobin	110	110	P/P	50 - 150
MCPP	106	103	P/P	50 - 150
Naproxen	101	98.4	P/P	50 - 160
Primidone	116	107	P/P	60 - 150
Pyraclostrobin	106	106	P/P	60 - 150
Thiamethoxam	111	111	P/P	50 - 150
Tolfenpyrad	108	108	P/P	60 - 150
Triclopyr	109	103	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A106799

Included Lab Sample IDs: 2264783, 2264784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	106	110	P/P	60 - 160
Glufosinate	104	104	P/P	60 - 160
Glyphosate	110	110	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A106800

Included Lab Sample IDs: 2264757, 2264758, 2264763, 2264764

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	97.8	P/P	90 - 110
O-Phosphate-P	98.8	97.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A106805

Included Lab Sample IDs: 2264753, 2264754, 2264759, 2264760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A106812

Included Lab Sample IDs: 2264783, 2264784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	78.3	81.1	P/P	60 - 160
Endothall	79.4	86.6	P/P	60 - 160
Sucralose	81.3	79.6	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A106865

Included Lab Sample IDs: 2264753, 2264754, 2264759, 2264760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110
Total Alkalinity	102	99.6	P/P	90 - 110
Total Alkalinity	99.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106865

Included Lab Sample IDs: 2264753, 2264754, 2264759, 2264760

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106874

Included Lab Sample IDs: 2264755, 2264756, 2264761, 2264762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107048

Included Lab Sample IDs: 2264785, 2264786

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	105	105	P/P	90 - 110
Antimony	105	105	P/P	90 - 110
Arsenic	101	103	P/P	90 - 110
Beryllium	103	102	P/P	90 - 110
Cadmium	103	104	P/P	90 - 110
Chromium	102	103	P/P	90 - 110
Lead	104	104	P/P	90 - 110
Nickel	101	105	P/P	90 - 110
Selenium	99.8	101	P/P	90 - 110
Silver	95.9	96.6	P/P	90 - 110
Thallium	108	106	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107056

Included Lab Sample IDs: 2264755, 2264756, 2264761, 2264762

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

Reference Method: SM 5310 B-2011

Run ID: A107056

Included Lab Sample IDs: 2264755, 2264756, 2264761, 2264762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	96.6	P/P	90 - 110
Organic Carbon	96.6	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107064

Included Lab Sample IDs: 2264755, 2264756, 2264761, 2264762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107071

Included Lab Sample IDs: 2264785, 2264786

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	103	P/P	90 - 110
Iron	103	104	P/P	90 - 110
Magnesium	103	104	P/P	90 - 110
Manganese	106	104	P/P	90 - 110
Zinc	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107087

Included Lab Sample IDs: 2264756

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107089

Included Lab Sample IDs: 2264786

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	98.1	P/P	95 - 105
Iron	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107092

Included Lab Sample IDs: 2264755, 2264761, 2264762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107115

Included Lab Sample IDs: 2264786

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	101	97.9	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107128

Included Lab Sample IDs: 2264785, 2264786

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	99.9	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107223

Included Lab Sample IDs: 2264755, 2264756, 2264761, 2264762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	97.6	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						0.409	
EPA 200.7 Rev. 4.4	Calcium	104	103	102				0.568
	Iron	97.1	96.7	96.9	95.5			1.44
	Magnesium	99.9	104	95.4	93.7			0.956
	Manganese	93.6	90.5	93.3	91.1			2.40
	Zinc	95.1	90.4	93.4	91.0			2.54
EPA 200.8 Rev. 5.4	Aluminum	94.3	92.3	93.8	93.3			1.67
	Antimony	95.4	95.4	96.5	97.4			1.15
	Arsenic	94.0	90.5	91.3	91.9			0.906
	Beryllium	95.8	96.6	96.9	95.4			0.373
	Cadmium	91.8	91.4	91.5	94.0			0.155
	Chromium	91.2	92.6	93.3	93.0			0.744
	Copper	95.6	95.6	97.6				1.88
	Lead	92.8	90.9	92.5	92.3			1.82
	Nickel	94.3	89.9	91.4	89.6			1.60
	Selenium	92.9	89.8	88.9	89.7			0.997
	Silver	113	112	113	113			1.03
	Thallium	95.2	94.6	97.2	95.4			2.71
EPA 350.1 Rev. 2.0	Ammonia-N	101	98.6	98.8				0.184
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	113	111				1.21
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.6	99.6				0.0
EPA 365.1 Rev. 2.0	Total-P	104	104	105				0.955
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	92.2	92.0				0.217
EPA 8321B	2,4-D	138	99.6	111				5.86
	2,4,5-T	146	114	114				0.503
	Acesulfame K	81.5	112	109				2.68
	Acetaminophen	94.2	83.6	78.2				5.92
	Acetamiprid	99.1	93.7	92.0				1.83
	Afidopyropen	64.8	58.8	58.4				0.745
	AMPA	97.5	90.3	92.0				1.84
	Bentazon	98.9	71.1	75.1				3.06
	Benzovindiflupyr	107	94.9	92.4				2.64
	Carbamazepine	112	101	106				4.13
	Clothianidin	116	111	109				1.83
	Dinotefuran	114	115	113				1.78
	Diuron	110	87.5	86.7				0.999
	Endothall	80.8	97.8	98.1				0.314
	Fenuron	112	90.9	89.3				1.70
	Fluridone	99.1	82.7	83.1				0.469
	Glufosinate	101	112	115				2.69
	Glyphosate	103	87.5	91.3				4.33
	Hydrocodone	115	114	112				1.43
	Ibuprofen	116	100	96.0				4.29
	Imazapyr	146	104	102				2.08
	Imidacloprid	114	132	133				0.413
	Linuron	99.5	85.4	85.7				0.437
	Mandestrobin	105	94.6	92.8				1.83
	MCPP	143	119	122				2.97
	Naproxen	92.4	81.4	81.9				0.566
	Primidone	121	119	119				0.407
	Pyraclostrobin	95.9	85.0	82.3				3.16
	Sucralose	84.1	85.9	85.5				0.381
	Thiamethoxam	116	136	132				3.15
	Tolfenpyrad	56.9	56.1	55.3				1.47

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 8321B	Triclopyr	149	119 120			1.13
SM 2320 B-2011	Total Alkalinity	103			3.65	
SM 2540 D-2011	TSS				2.67	
SM 4500 F-C-2011	Fluoride	98.4	98.6 99.1			0.472
SM 5310 B-2011	Organic Carbon	95.7	95.9 97.2			0.900

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2264753, 2264754, 2264759, 2264760
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2264785, 2264786
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2264785, 2264786
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2264755, 2264756, 2264761, 2264762
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2264755, 2264756, 2264761, 2264762
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2264755, 2264756, 2264761, 2264762
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2264755, 2264756, 2264761, 2264762
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2264757, 2264758, 2264763, 2264764
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2264783, 2264784
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2264753, 2264754, 2264759, 2264760
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2264753, 2264754, 2264759, 2264760
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2264753, 2264754, 2264759, 2264760
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2264755, 2264756, 2264761, 2264762

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	07/23/2021			07/23/2021 16:14	Sarah A Nixon	2264753, 2264754, 2264759, 2264760
EPA 200.7 Rev. 4.4	07/23/2021	07/27/2021 13:50	Elliott D. Healy	08/05/2021 23:26	Betina Topolski	2264785
	07/23/2021	07/27/2021 13:50	Elliott D. Healy	08/05/2021 23:34	Betina Topolski	2264786
	07/23/2021	07/27/2021 13:50	Elliott D. Healy	08/06/2021 11:08	Betina Topolski	2264786
	07/23/2021	07/27/2021 13:50	Elliott D. Healy	08/09/2021 12:39	Betina Topolski	2264786
EPA 200.8 Rev. 5.4	07/23/2021	07/27/2021 13:50	Elliott D. Healy	08/04/2021 23:29	Alexander Thompson	2264785
	07/23/2021	07/27/2021 13:50	Elliott D. Healy	08/04/2021 23:38	Alexander Thompson	2264786
	07/23/2021	08/09/2021 07:30	Alexander Thompson	08/09/2021 16:59	McKinley C Carter	2264785
	07/23/2021	08/09/2021 07:30	Alexander Thompson	08/09/2021 17:05	McKinley C Carter	2264786
EPA 350.1 Rev. 2.0	07/23/2021			08/05/2021 13:33	Ping Hua	2264755
	07/23/2021			08/05/2021 13:34	Ping Hua	2264756
	07/23/2021			08/05/2021 13:35	Ping Hua	2264761
	07/23/2021			08/05/2021 13:37	Ping Hua	2264762
EPA 351.2 Rev. 2.0	07/23/2021	08/11/2021 18:38	Madeline Gruver	08/12/2021 12:48	Virginia P. Brown	2264755
	07/23/2021	08/11/2021 18:38	Madeline Gruver	08/12/2021 12:49	Virginia P. Brown	2264756
	07/23/2021	08/11/2021 18:38	Madeline Gruver	08/12/2021 12:51	Virginia P. Brown	2264761
	07/23/2021	08/11/2021 18:38	Madeline Gruver	08/12/2021 12:52	Virginia P. Brown	2264762
EPA 353.2 Rev. 2.0	07/23/2021			07/28/2021 09:49	Beverly Y. Sanders	2264755
	07/23/2021			07/28/2021 09:50	Beverly Y. Sanders	2264756
	07/23/2021			07/28/2021 09:51	Beverly Y. Sanders	2264761
	07/23/2021			07/28/2021 09:52	Beverly Y. Sanders	2264762
EPA 365.1 Rev. 2.0	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 09:26	Shengyu Ding	2264756
	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 12:18	Shengyu Ding	2264755
	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 12:19	Shengyu Ding	2264761
	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 12:20	Shengyu Ding	2264762
EPA 365.1 Rev. 2.0 dissolved	07/23/2021			07/23/2021 13:49	Lipi Saha	2264757
	07/23/2021			07/23/2021 13:50	Lipi Saha	2264758
	07/23/2021			07/23/2021 13:51	Lipi Saha	2264763
	07/23/2021			07/23/2021 13:56	Lipi Saha	2264764
EPA 8321B	07/23/2021	07/23/2021 12:00	Pramila Ghimire	07/23/2021 13:19	Juyoung Kim	2264783
	07/23/2021	07/23/2021 12:00	Pramila Ghimire	07/23/2021 13:30	Juyoung Kim	2264784
	07/23/2021	07/23/2021 12:00	Pramila Ghimire	07/23/2021 20:01	Pramila Ghimire	2264783
	07/23/2021	07/23/2021 12:00	Pramila Ghimire	07/23/2021 20:15	Pramila Ghimire	2264784
	07/23/2021	07/23/2021 13:00	Hoor Shaik	07/24/2021 05:22	Juyoung Kim	2264783
	07/23/2021	07/23/2021 13:00	Hoor Shaik	07/24/2021 05:57	Juyoung Kim	2264784
SM 2320 B-2011	07/23/2021			07/27/2021 14:20	Dale L. Simmons	2264754
	07/23/2021			07/27/2021 17:03	Dale L. Simmons	2264759
	07/23/2021			07/27/2021 17:17	Dale L. Simmons	2264760
	07/23/2021			07/27/2021 18:58	Dale L. Simmons	2264753
SM 2540 D-2011	07/23/2021			07/27/2021 14:56	Yijie Li	2264753, 2264754, 2264759, 2264760

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	07/23/2021			07/27/2021 14:10	Dale L. Simmons	2264754
	07/23/2021			07/27/2021 17:03	Dale L. Simmons	2264759
	07/23/2021			07/27/2021 17:17	Dale L. Simmons	2264760
	07/23/2021			07/27/2021 18:58	Dale L. Simmons	2264753
SM 5310 B-2011	07/23/2021			08/05/2021 05:18	Madeline Gruver	2264755
	07/23/2021			08/05/2021 05:46	Madeline Gruver	2264756
	07/23/2021			08/05/2021 05:56	Madeline Gruver	2264761
	07/23/2021			08/05/2021 06:05	Madeline Gruver	2264762