

Chemical Analysis Report

NW-DIST-2021-05-25-02

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-2021-05-17-40**
Customer: **NW-DIST**
Project ID: **SMP**

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

Date Certified: 17-JUN-2021 15:38



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: 05/24/2021 10:40

Field ID: G4NW0516

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249829	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P398744	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P398968	
	SM 2540 D-2011	TSS	2	U	mg/L	P399003	
	SM 4500 F-C-2011	Fluoride	0.041	I	mg F/L	P398971	
2249831	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P399450	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P398948	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P398776	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P398921	
	SM 5310 B-2011	Organic Carbon	1.3		mg C/L	P398926	
2249833	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P398750	
2249863	EPA 8321B	2,4-D	0.0020	U	ug/L	P398757	
		Acesulfame K	0.10	U	ug/L	P398724	
		2,4,5-T	0.0040	U	ug/L	P398757	
		AMPA	0.10	U	ug/L	P398724	
		Sucralose	0.26		ug/L	P398724	
		Acetaminophen	0.0080	U	ug/L	P398757	
		Acetamiprid	0.0020	U	ug/L	P398757	
		Endothall	0.25	U	ug/L	P398724	
		Glufosinate	0.10	U	ug/L	P398724	
		Glyphosate	0.10	U	ug/L	P398724	
		Afidopyropen	0.0020	U	ug/L	P398757	MS, RPD
		Bentazon	0.0022	I	ug/L	P398757	
		Benzovindiflupyr	0.0020	U	ug/L	P398757	
		Carbamazepine	0.0015	I	ug/L	P398757	
		Clothianidin	0.0020	U	ug/L	P398757	
		Dinotefuran	0.0020	U	ug/L	P398757	
		Diuron	0.0020	U	ug/L	P398757	
		Fenuron	0.016	U	ug/L	P398757	
		Fluridone	8.0E-04	U	ug/L	P398757	
		Imazapyr	0.011	I	ug/L	P398757	
		Hydrocodone	0.0020	U	ug/L	P398757	
		Ibuprofen	0.020	U	ug/L	P398757	
		Imidacloprid	0.031		ug/L	P398757	
		Linuron	0.0040	U	ug/L	P398757	
		Mandestrobin	0.0020	U	ug/L	P398757	
		MCP	0.0020	U	ug/L	P398757	
		Naproxen	0.0080	U	ug/L	P398757	
		Primidone	0.0040	U	ug/L	P398757	
		Pyraclostrobin	0.0020	U	ug/L	P398757	
		Thiamethoxam	0.0020	U	ug/L	P398757	
		Tolfenpyrad	0.0020	U	ug/L	P398757	
		Triclopyr	0.0040	U	ug/L	P398757	
2249865	EPA 200.7 Rev. 4.4	Calcium	7.31		mg/L	P398817	

Field ID: G4NW0516

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249865	EPA 200.7 Rev. 4.4	Iron	400		ug/L	P398817	
		Magnesium	2.78		mg/L	P398817	
		Manganese	28.3		ug/L	P398817	
		Zinc	10	I	ug/L	P398817	
	EPA 200.8 Rev. 5.4	Aluminum	77		ug/L	P398817	
		Antimony	0.050	U	ug/L	P399110	
		Arsenic	0.29		ug/L	P399110	
		Beryllium	0.022	I	ug/L	P398817	
		Cadmium	0.032	I	ug/L	P399110	
		Chromium	0.40	U	ug/L	P398817	
		Copper	0.59	I	ug/L	P398817	
		Lead	0.44		ug/L	P399110	
		Nickel	0.57	I	ug/L	P398817	
		Selenium	0.25	I	ug/L	P398817	
		Silver	0.010	U	ug/L	P398817	
		Thallium	0.10	U	ug/L	P399110	
	SM 2340B	Hardness	29.7		mg/L	P398817	

Ref. Method and Comment:

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

Sample Location: Bayou Texar 200 Meters above Hwy 90 Bridge **Collection Date/Time: 05/24/2021 10:25**

Field ID: G4NW0402

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249830	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P398744	
	SM 2320 B-2011	Total Alkalinity	32		mg CaCO3/L	P398968	
	SM 2540 D-2011	TSS	2	I	mg/L	P399004	
	SM 4500 F-C-2011	Fluoride	0.39		mg F/L	P398971	
2249832	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P399175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P398946	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P398857	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P398920	
	SM 5310 B-2011	Organic Carbon	3.6		mg C/L	P398926	
2249834	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P398747	
2249864	EPA 8321B	Acesulfame K	0.10	U	ug/L	P398724	
		2,4-D	0.0072	I	ug/L	P398757	
		AMPA	1.0	U	ug/L	P398724	
		2,4,5-T	0.0040	U	ug/L	P398757	
		Sucralose	0.010	UJ	ug/L	P398724	SUR
		Acetaminophen	0.067		ug/L	P398757	
		Endothall	0.25	U	ug/L	P398724	
		Acetamiprid	0.0020	U	ug/L	P398757	
		Glufosinate	1.0	U	ug/L	P398724	
		Glyphosate	1.0	U	ug/L	P398724	
		Afidopyropen	0.0020	U	ug/L	P398757	MS, RPD
		Bentazon	0.0020	I	ug/L	P398757	
		Benzovindiflupyr	0.0020	U	ug/L	P398757	
		Carbamazepine	8.0E-04	U	ug/L	P398757	
		Clothianidin	0.0020	U	ug/L	P398757	
		Dinotefuran	0.0020	U	ug/L	P398757	
		Diuron	0.0020	U	ug/L	P398757	
		Fenuron	0.016	U	ug/L	P398757	
		Fluridone	8.0E-04	U	ug/L	P398757	
		Imazapyr	0.0086	I	ug/L	P398757	
		Hydrocodone	0.0020	U	ug/L	P398757	
		Ibuprofen	0.020	U	ug/L	P398757	
		Imidacloprid	0.010		ug/L	P398757	
		Linuron	0.0040	U	ug/L	P398757	
		Mandestrobin	0.0020	U	ug/L	P398757	
		MCP	0.0020	U	ug/L	P398757	
		Naproxen	0.0080	U	ug/L	P398757	
		Primidone	0.0040	U	ug/L	P398757	
		Pyraclostrobin	0.0020	U	ug/L	P398757	
		Thiamethoxam	0.0020	U	ug/L	P398757	
		Tolfenpyrad	0.0020	U	ug/L	P398757	
		Triclopyr	0.0040	U	ug/L	P398757	
2249866	EPA 200.7 Rev. 4.4	Calcium	55.2		mg/L	P398817	

Field ID: G4NW0402

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249866	EPA 200.7 Rev. 4.4	Iron	120		ug/L	P398817	
		Magnesium	151		mg/L	P398817	
		Manganese	18.0		ug/L	P398817	
		Zinc	5.3	I	ug/L	P398817	
	EPA 200.8 Rev. 5.4	Aluminum	184		ug/L	P398817	
		Antimony	0.087	I	ug/L	P399110	
		Arsenic	1.32		ug/L	P399110	
		Beryllium	0.015	I	ug/L	P398817	
		Cadmium	0.020	U	ug/L	P399110	
		Chromium	0.40	U	ug/L	P398817	
		Copper	1.34		ug/L	P398817	
		Lead	0.64		ug/L	P399110	
		Nickel	0.56	I	ug/L	P398817	
		Selenium	0.20	U	ug/L	P398817	
		Silver	0.010	U	ug/L	P398817	
		Thallium	0.10	U	ug/L	P399110	
	SM 2340B	Hardness	759		mg/L	P398817	

Ref. Method and Comment:

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

EPA 8321B: MDL for some parameters elevated due to matrix interference.

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

EPA 8321B: Results confirmed in re-extraction. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Trout Bayou

Collection Date/Time: 05/24/2021 11:55

Field ID: G4NW0443

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249823	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P398744	
	SM 2320 B-2011	Total Alkalinity	35		mg CaCO3/L	P398968	
	SM 2540 D-2011	TSS	3	I	mg/L	P399003	
	SM 4500 F-C-2011	Fluoride	0.21		mg F/L	P398971	
2249825	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P399175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P398946	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P398857	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P398920	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P398926	
2249827	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P398747	

Sample Location: Judges Bayou Mouth

Collection Date/Time: 05/24/2021 13:00

Field ID: G4NW0441

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2249824	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P398744	
	SM 2320 B-2011	Total Alkalinity	25		mg CaCO3/L	P398968	
	SM 2540 D-2011	TSS	9	I	mg/L	P399003	
	SM 4500 F-C-2011	Fluoride	0.067	I	mg F/L	P398971	
2249826	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P399450	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P398948	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P398776	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P398921	
	SM 5310 B-2011	Organic Carbon	6.1		mg C/L	P398926	
2249828	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P398749	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P398744

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P398817

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: P398817

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Beryllium	0.010	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P399110

Component	Result	Code	Units
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Lead	0.20	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399175

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399450

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398946

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398857

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398920

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398747

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398749

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

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

Reference Method: EPA 8321B
Batch ID: P398724

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P398724

Component	Result	Code	Units
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P398757

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

Reference Method: SM 2320 B-2011
Batch ID: P398968

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

Reference Method: SM 2540 D-2011
Batch ID: P399003

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P399004

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P398926

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: P398817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	103		P	85 - 115
Magnesium	104		P	85 - 115
Manganese	99.1		P	85 - 115
Zinc	95.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P398817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.3		P	80 - 120
Beryllium	93.1		P	80 - 120
Chromium	95.2		P	80 - 120
Copper	97.1		P	80 - 120
Nickel	97.8		P	80 - 120
Selenium	97.1		P	80 - 120
Silver	98.8		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P399110

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Antimony	103		P	85 - 115
Arsenic	100		P	85 - 115
Cadmium	102		P	85 - 115
Lead	112		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399175

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399450

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398946

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398857

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398920

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398747

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.4		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P398724

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	119		P	40 - 150
AMPA	92.6		P	40 - 150
Endothall	126		P	40 - 150
Glufosinate	96.5		P	40 - 150
Glyphosate	91.5		P	40 - 150
Sucralose	122		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P398757

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	70.8		P	40 - 150
2,4,5-T	73.1		P	40 - 150
Acetaminophen	77.8		P	30 - 150
Acetamiprid	87.7		P	40 - 150
Afidopyropen	56.6		P	40 - 150
Bentazon	115		P	30 - 150
Benzovindiflupyr	74.7		P	40 - 150
Carbamazepine	82.0		P	40 - 150
Clothianidin	78.6		P	40 - 150
Dinotefuran	80.3		P	40 - 150
Diuron	68.8		P	40 - 150
Fenuron	96.3		P	40 - 150
Fluridone	75.2		P	40 - 150
Hydrocodone	76.2		P	40 - 150
Ibuprofen	66.0		P	40 - 150
Imazapyr	87.7		P	40 - 150
Imidacloprid	80.1		P	40 - 150
Linuron	61.1		P	40 - 150
Mandestrobin	81.7		P	40 - 150
MCPP	84.7		P	40 - 150
Naproxen	47.2		P	40 - 150
Primidone	88.2		P	40 - 150
Pyraclostrobin	65.0		P	40 - 150
Thiamethoxam	76.4		P	40 - 150
Tolfenpyrad	35.4		P	30 - 150
Triclopyr	91.3		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P398968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.6		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P398926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P398817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249623	Calcium	103		P	80 - 120
2249623	Iron	107		P	80 - 120
2249623	Magnesium	101		P	80 - 120
2249623	Manganese	100		P	80 - 120
2249623	Zinc	99.1		P	80 - 120
2249798	Calcium	110	110	P/P	80 - 120
2249798	Iron	105	105	P/P	80 - 120
2249798	Magnesium	106	105	P/P	80 - 120
2249798	Manganese	102	102	P/P	80 - 120
2249798	Zinc	102	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P398817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249623	Aluminum	119		P	80 - 120
2249623	Beryllium	111		P	80 - 120
2249623	Chromium	118		P	80 - 120
2249623	Copper	119		P	80 - 120
2249623	Nickel	120		P	80 - 120
2249623	Selenium	119		P	80 - 120
2249623	Silver	97.8		P	80 - 120
2249798	Aluminum	95.5	95.0	P/P	80 - 120
2249798	Beryllium	95.9	90.0	P/P	80 - 120
2249798	Chromium	95.9	96.5	P/P	80 - 120
2249798	Copper	97.6	97.9	P/P	80 - 120
2249798	Nickel	95.7	94.3	P/P	80 - 120
2249798	Selenium	96.1	95.2	P/P	80 - 120
2249798	Silver	98.7	98.5	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P399110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249624	Antimony	101	100	P/P	80 - 120
2249624	Arsenic	100	98.4	P/P	80 - 120
2249624	Cadmium	102	102	P/P	80 - 120
2249624	Lead	113	111	P/P	80 - 120
2249624	Thallium	104	104	P/P	80 - 120
2249920	Antimony	103		P	80 - 120
2249920	Arsenic	102		P	80 - 120
2249920	Cadmium	102		P	80 - 120
2249920	Lead	114		P	80 - 120
2249920	Thallium	106		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P399175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249523	Ammonia-N	98.8	97.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249682	Ammonia-N	94.6	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249523	Kjeldahl Nitrogen	96.9	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249826	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249808	NO2NO3-N	97.5	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398857

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249680	NO2NO3-N	98.2	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249817	Total-P	100	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249809	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249524	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249782	O-Phosphate-P	94.2	97.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249833	O-Phosphate-P	96.2	97.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P398724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249591	Acesulfame K	115	118	P/P	40 - 150
2249591	AMPA	106	106	P/P	40 - 150
2249591	Endothall	95.0	105	P/P	40 - 150
2249591	Glufosinate	96.5	103	P/P	40 - 150
2249591	Glyphosate	107	108	P/P	40 - 150
2249591	Sucralose	114	116	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P398757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249593	2,4-D	121	99.3	P/P	40 - 150
2249593	2,4,5-T	126	112	P/P	40 - 150
2249593	Acetaminophen	92.4	76.3	P/P	30 - 150
2249593	Acetamiprid	94.8	84.2	P/P	40 - 150
2249593	Afidopyrophen	74.1	29.9	P/F	40 - 150
2249593	Benzovindiflupyr	91.4	80.4	P/P	40 - 150
2249593	Carbamazepine	101	85.0	P/P	40 - 150
2249593	Clothianidin	84.1	92.5	P/P	40 - 150
2249593	Dinotefuran	99.5	70.3	P/P	40 - 150
2249593	Diuron	80.7	76.1	P/P	40 - 150
2249593	Fenuron	117	107	P/P	40 - 150
2249593	Fluridone	89.4	87.8	P/P	40 - 150
2249593	Hydrocodone	87.5	84.4	P/P	40 - 150
2249593	Ibuprofen	83.7	69.4	P/P	40 - 150
2249593	Imazapyr	115	88.4	P/P	40 - 150
2249593	Imidacloprid	105	104	P/P	40 - 150
2249593	Linuron	75.0	76.6	P/P	40 - 150
2249593	Mandestrobin	102	90.6	P/P	40 - 150
2249593	MCP	132	116	P/P	40 - 150
2249593	Naproxen	73.8	68.9	P/P	40 - 150
2249593	Primidone	95.2	99.4	P/P	40 - 150
2249593	Pyraclostrobin	88.3	78.7	P/P	40 - 150
2249593	Thiamethoxam	85.4	84.5	P/P	40 - 150
2249593	Tolfenpyrad	58.8	50.7	P/P	30 - 150
2249593	Triclopyr	143	118	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249937	Fluoride	97.2	97.8	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P398926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2249572	Organic Carbon	95.2	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P398744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249627	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P398817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249798	Calcium	0.0379	Spike	P	0 - 20
2249798	Iron	0.252	Spike	P	0 - 20
2249798	Magnesium	1.24	Spike	P	0 - 20
2249798	Manganese	0.0800	Spike	P	0 - 20
2249798	Zinc	0.627	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P398817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249798	Aluminum	0.509	Spike	P	0 - 20
2249798	Beryllium	6.05	Spike	P	0 - 20
2249798	Chromium	0.625	Spike	P	0 - 20
2249798	Copper	0.342	Spike	P	0 - 20
2249798	Nickel	1.41	Spike	P	0 - 20
2249798	Selenium	0.886	Spike	P	0 - 20
2249798	Silver	0.249	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P399110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249624	Antimony	1.45	Spike	P	0 - 20
2249624	Arsenic	1.89	Spike	P	0 - 20
2249624	Cadmium	0.00947	Spike	P	0 - 20
2249624	Lead	1.94	Spike	P	0 - 20
2249624	Thallium	0.216	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249523	Ammonia-N	0.976	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249682	Ammonia-N	3.19	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249523	Kjeldahl Nitrogen	0.225	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P398948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249826	Kjeldahl Nitrogen	3.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249808	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398857

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249680	NO2NO3-N	0.508	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249817	Total-P	1.72	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249809	Total-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249524	O-Phosphate-P	0.497	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249782	O-Phosphate-P	3.03	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249833	O-Phosphate-P	0.828	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P398724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249591	Acesulfame K	2.71	Spike	P	0 - 30
2249591	AMPA	0.200	Spike	P	0 - 30
2249591	Endothall	9.70	Spike	P	0 - 30
2249591	Glufosinate	6.86	Spike	P	0 - 30
2249591	Glyphosate	1.67	Spike	P	0 - 30
2249591	Sucralose	2.00	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P398757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249593	2,4-D	19.3	Spike	P	0 - 30
2249593	2,4,5-T	11.9	Spike	P	0 - 30
2249593	Acetaminophen	19.0	Spike	P	0 - 30
2249593	Acetamiprid	11.9	Spike	P	0 - 30
2249593	Afidopyropen	85.1	Spike	F	0 - 30
2249593	Bentazon	14.2	Spike	P	0 - 30
2249593	Benzovindiflupyr	12.9	Spike	P	0 - 30
2249593	Carbamazepine	17.2	Spike	P	0 - 30
2249593	Clothianidin	9.46	Spike	P	0 - 30
2249593	Dinotefuran	15.8	Spike	P	0 - 30
2249593	Diuron	5.88	Spike	P	0 - 30
2249593	Fenuron	9.35	Spike	P	0 - 30
2249593	Fluridone	1.87	Spike	P	0 - 30
2249593	Hydrocodone	3.60	Spike	P	0 - 30
2249593	Ibuprofen	18.8	Spike	P	0 - 30
2249593	Imazapyr	26.5	Spike	P	0 - 30
2249593	Imidacloprid	0.684	Spike	P	0 - 30
2249593	Linuron	2.10	Spike	P	0 - 30
2249593	Mandestrobin	11.9	Spike	P	0 - 30
2249593	MCP	13.0	Spike	P	0 - 30
2249593	Naproxen	6.84	Spike	P	0 - 30
2249593	Primidone	4.25	Spike	P	0 - 30
2249593	Pyraclostrobin	11.5	Spike	P	0 - 30
2249593	Thiamethoxam	1.02	Spike	P	0 - 30
2249593	Tolfenpyrad	14.7	Spike	P	0 - 30
2249593	Triclopyr	19.4	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P398968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P398968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249937	Total Alkalinity	1.38	Sample	P	0 - 5.2

Reference Method: SM 2540 D-2011
Batch ID: P399003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250322	TSS	7.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P398971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249937	Fluoride	0.464	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P398926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2249572	Organic Carbon	0.907	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2249863

Field Sample ID: G4NW0516

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	103	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	108	P	30 - 160
EPA 8321B	Diuron-d6	72.8	P	30 - 160
EPA 8321B	Endothall-d6	74.4	P	30 - 160
EPA 8321B	Endothall-d6	74.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	95.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	95.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	85.9	P	30 - 160
EPA 8321B	Primidone-d5	100	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160

Lab Sample ID: 2249864

Field Sample ID: G4NW0402

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	110	P	30 - 160
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	105	P	30 - 160
EPA 8321B	Diuron-d6	76.6	P	30 - 160
EPA 8321B	Endothall-d6	92.3	P	30 - 160
EPA 8321B	Endothall-d6	92.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	70.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	70.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	86.3	P	30 - 160
EPA 8321B	Primidone-d5	100	P	30 - 160
EPA 8321B	Sucralose-d6	15.9	F	30 - 160
EPA 8321B	Sucralose-d6	15.9	F	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A105648

Included Lab Sample IDs: 2249823, 2249824, 2249829, 2249830

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A105649

Included Lab Sample IDs: 2249827, 2249828, 2249833, 2249834

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	98.0	P/P	90 - 110
O-Phosphate-P	99.1	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105660

Included Lab Sample IDs: 2249826, 2249831

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A105695

Included Lab Sample IDs: 2249825, 2249832

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

Reference Method: SM 5310 B-2011

Run ID: A105730

Included Lab Sample IDs: 2249825, 2249826, 2249831, 2249832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	98.8	P/P	90 - 110
Organic Carbon	98.8	98.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A105746

Included Lab Sample IDs: 2249865, 2249866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	103	P/P	90 - 110
Beryllium	96.8	95.7	P/P	90 - 110
Chromium	95.4	96.0	P/P	90 - 110
Copper	97.7	101	P/P	90 - 110
Nickel	98.3	101	P/P	90 - 110
Selenium	99.7	101	P/P	90 - 110
Silver	96.9	96.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A105748

Included Lab Sample IDs: 2249863, 2249864

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

Reference Method: EPA 8321B

Run ID: A105748

Included Lab Sample IDs: 2249863, 2249864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	109	103	P/P	60 - 160
Endothall	123	121	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A105750

Included Lab Sample IDs: 2249863, 2249864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	120	124	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A105751

Included Lab Sample IDs: 2249863, 2249864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	110	102	P/P	60 - 160
AMPA	84.4	100	P/P	60 - 160
Glufosinate	81.8	93.5	P/P	60 - 160
Glufosinate	95.4	100	P/P	60 - 160
Glyphosate	103	103	P/P	60 - 160
Glyphosate	80.7	93.8	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A105756

Included Lab Sample IDs: 2249823, 2249824, 2249829, 2249830

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A105756

Included Lab Sample IDs: 2249823, 2249824, 2249829, 2249830

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A105757

Included Lab Sample IDs: 2249826, 2249831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A105760

Included Lab Sample IDs: 2249825, 2249832

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A105794

Included Lab Sample IDs: 2249825, 2249826, 2249831, 2249832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.4	91.6	P/P	90 - 110
Kjeldahl Nitrogen	98.0	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A105808

Included Lab Sample IDs: 2249863, 2249864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	73.7	84.0	P/P	50 - 150
2,4-D	84.0	79.8	P/P	50 - 150
2,4,5-T	122	140	P/P	50 - 150
2,4,5-T	84.8	122	P/P	50 - 150
Acetaminophen	79.7	84.4	P/P	60 - 160
Acetaminophen	84.4	79.3	P/P	60 - 160
Acetamiprid	101	102	P/P	50 - 150
Acetamiprid	101	101	P/P	50 - 150
Afidopyropen	97.6	84.2	P/P	50 - 150
Afidopyropen	98.0	97.6	P/P	50 - 150
Bentazon	129	140	P/P	50 - 160
Bentazon	73.6	129	P/P	50 - 160
Benzovindiflupyr	101	95.5	P/P	50 - 150
Benzovindiflupyr	93.0	101	P/P	50 - 150
Carbamazepine	94.7	98.8	P/P	60 - 150
Carbamazepine	97.4	94.7	P/P	60 - 150
Clothianidin	100	105	P/P	60 - 150
Clothianidin	105	96.2	P/P	60 - 150
Dinotefuran	92.3	93.8	P/P	50 - 150
Dinotefuran	92.7	92.3	P/P	50 - 150
Diuron	98.6	98.9	P/P	60 - 160
Diuron	99.2	98.6	P/P	60 - 160
Fenuron	86.4	95.8	P/P	60 - 150
Fenuron	95.8	95.4	P/P	60 - 150
Fluridone	102	104	P/P	60 - 160
Fluridone	104	102	P/P	60 - 160
Hydrocodone	91.3	91.9	P/P	60 - 150
Hydrocodone	93.2	91.3	P/P	60 - 150
Ibuprofen	106	112	P/P	50 - 160
Ibuprofen	110	106	P/P	50 - 160
Imazapyr	93.6	96.1	P/P	50 - 150
Imazapyr	96.1	94.9	P/P	50 - 150
Imidacloprid	90.3	97.4	P/P	60 - 150
Imidacloprid	97.4	97.3	P/P	60 - 150
Linuron	101	99.0	P/P	60 - 150
Linuron	99.0	89.2	P/P	60 - 150
Mandestrobin	107	96.9	P/P	50 - 150
Mandestrobin	91.4	107	P/P	50 - 150
MCP	81.9	86.4	P/P	50 - 150
MCP	86.4	95.0	P/P	50 - 150
Naproxen	86.5	78.7	P/P	50 - 160
Naproxen	96.9	86.5	P/P	50 - 160
Primidone	92.3	89.6	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A105808

Included Lab Sample IDs: 2249863, 2249864

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Primidone	93.8	92.3	P/P	60 - 150
Pyraclostrobin	97.9	94.9	P/P	60 - 150
Pyraclostrobin	98.0	97.9	P/P	60 - 150
Thiamethoxam	92.2	97.1	P/P	50 - 150
Thiamethoxam	97.1	97.5	P/P	50 - 150
Tolfenpyrad	84.7	91.1	P/P	60 - 150
Tolfenpyrad	91.1	82.1	P/P	60 - 150
Triclopyr	101	125	P/P	50 - 150
Triclopyr	125	139	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105849

Included Lab Sample IDs: 2249825, 2249832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A105861

Included Lab Sample IDs: 2249865, 2249866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	98.5	P/P	90 - 110
Iron	102	100	P/P	90 - 110
Magnesium	102	99.5	P/P	90 - 110
Manganese	103	103	P/P	90 - 110
Zinc	104	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A105950

Included Lab Sample IDs: 2249865, 2249866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	104	104	P/P	90 - 110
Arsenic	101	102	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Thallium	96.9	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A105965

Included Lab Sample IDs: 2249826, 2249831

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.6	95.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A105975

Included Lab Sample IDs: 2249865, 2249866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	101	109	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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						0.0	
EPA 200.7 Rev. 4.4	Calcium	107	103	110	110			0.0379
	Iron	103	107	105	105			0.252
	Magnesium	104	101	106	105			1.24
	Manganese	99.1	100	102	102			0.0800
	Zinc	95.5	99.1	102	102			0.627
EPA 200.8 Rev. 5.4	Aluminum	96.3	95.5	95.0	119			0.509
	Antimony	103	101	100	103			1.45
	Arsenic	100	100	98.4	102			1.89
	Beryllium	93.1	95.9	90.0	111			6.05
	Cadmium	102	102	102	102			0.0094
	Chromium	95.2	95.9	96.5	118			0.625
	Copper	97.1	97.6	97.9	119			0.342
	Lead	112	113	111	114			1.94
	Nickel	97.8	95.7	94.3	120			1.41
	Selenium	97.1	96.1	95.2	119			0.886
	Silver	98.8	98.7	98.5	97.8			0.249
	Thallium	102	104	104	106			0.216
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	98.8	97.4				0.976
	Ammonia-N	96.0	94.6	98.6				3.19
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	96.9	97.1				0.225
	Kjeldahl Nitrogen	104	106	101				3.31
EPA 353.2 Rev. 2.0	NO2NO3-N	100	97.5	97.5				0.0
	NO2NO3-N	101	98.2	98.7				0.508
EPA 365.1 Rev. 2.0	Total-P	105	100	98.4				1.72
	Total-P	105	105	106				1.49
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	100	101				0.497
	O-Phosphate-P	97.6	94.2	97.1				3.03
	O-Phosphate-P	97.4	96.2	97.0				0.828
EPA 8321B	2,4-D	70.8	121	99.3				19.3
	2,4,5-T	73.1	126	112				11.9
	Acesulfame K	119	115	118				2.71
	Acetaminophen	77.8	92.4	76.3				19.0
	Acetamiprid	87.7	94.8	84.2				11.9
	Afidopyropen	56.6	74.1	29.9				85.1
	AMPA	92.6	106	106				0.200
	Bentazon	115						14.2
	Benzovindiflupyr	74.7	91.4	80.4				12.9
	Carbamazepine	82.0	101	85.0				17.2
	Clothianidin	78.6	84.1	92.5				9.46
	Dinotefuran	80.3	99.5	70.3				15.8
	Diuron	68.8	80.7	76.1				5.88
	Endothall	126	95.0	105				9.70
	Fenuron	96.3	117	107				9.35
	Fluridone	75.2	89.4	87.8				1.87
	Glufosinate	96.5	96.5	103				6.86
	Glyphosate	91.5	107	108				1.67
	Hydrocodone	76.2	87.5	84.4				3.60
	Ibuprofen	66.0	83.7	69.4				18.8
	Imazapyr	87.7	115	88.4				26.5
	Imidacloprid	80.1	105	104				0.684
	Linuron	61.1	75.0	76.6				2.10
	Mandestrobin	81.7	102	90.6				11.9
	MCP	84.7	132	116				13.0

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Naproxen	47.2	73.8	68.9		6.84
	Primidone	88.2	95.2	99.4		4.25
	Pyraclostrobin	65.0	88.3	78.7		11.5
	Sucralose	122	114	116		2.00
	Thiamethoxam	76.4	85.4	84.5		1.02
	Tolfenpyrad	35.4	58.8	50.7		14.7
	Triclopyr	91.3	143	118		19.4
	Total Alkalinity	97.6			1.38	
SM 2320 B-2011	TSS				7.41	
SM 4500 F-C-2011	Fluoride	97.5	97.2	97.8		0.464
SM 5310 B-2011	Organic Carbon	97.6	95.2	96.2		0.907

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2249823, 2249824, 2249829, 2249830
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2249865, 2249866
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2249865, 2249866
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2249825, 2249826, 2249831, 2249832
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2249825, 2249826, 2249831, 2249832
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2249825, 2249826, 2249831, 2249832
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2249825, 2249826, 2249831, 2249832
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2249827, 2249828, 2249833, 2249834
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2249863, 2249864
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2249863, 2249864
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2249823, 2249824, 2249829, 2249830
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2249865, 2249866
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2249823, 2249824, 2249829, 2249830
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2249823, 2249824, 2249829, 2249830
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2249825, 2249826, 2249831, 2249832

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	05/25/2021			05/25/2021 15:36	Yen Ta	2249823, 2249824, 2249829, 2249830
EPA 200.7 Rev. 4.4	05/25/2021	05/26/2021 15:10	Elliott D. Healy	06/03/2021 17:17	Betina Topolski	2249865
	05/25/2021	05/26/2021 15:10	Elliott D. Healy	06/03/2021 17:25	Betina Topolski	2249866
	05/25/2021	05/26/2021 15:10	Elliott D. Healy	06/03/2021 17:33	Betina Topolski	2249866
EPA 200.8 Rev. 5.4	05/25/2021	05/26/2021 15:10	Elliott D. Healy	05/28/2021 03:07	McKinley C Carter	2249865
	05/25/2021	05/26/2021 15:10	Elliott D. Healy	05/28/2021 03:16	McKinley C Carter	2249866
	05/25/2021	06/02/2021 16:20	Elliott D. Healy	06/09/2021 01:46	Alexander Thompson	2249865
	05/25/2021	06/02/2021 16:20	Elliott D. Healy	06/09/2021 01:53	Alexander Thompson	2249866
	05/25/2021	06/02/2021 16:20	Elliott D. Healy	06/09/2021 17:43	Alexander Thompson	2249865
	05/25/2021	06/02/2021 16:20	Elliott D. Healy	06/09/2021 17:49	Alexander Thompson	2249866
EPA 350.1 Rev. 2.0	05/25/2021			06/03/2021 13:55	Roberta Tatti	2249825
	05/25/2021			06/03/2021 13:56	Roberta Tatti	2249832
	05/25/2021			06/09/2021 14:07	Ping Hua	2249826
	05/25/2021			06/09/2021 14:09	Ping Hua	2249831
EPA 351.2 Rev. 2.0	05/25/2021	05/27/2021 13:11	Benjamin T. Nordmann	06/01/2021 13:47	Virginia P. Brown	2249826
	05/25/2021	05/27/2021 13:11	Benjamin T. Nordmann	06/01/2021 13:52	Virginia P. Brown	2249831
	05/25/2021	05/27/2021 13:30	Benjamin T. Nordmann	06/01/2021 13:02	Virginia P. Brown	2249825
	05/25/2021	05/27/2021 13:30	Benjamin T. Nordmann	06/01/2021 13:03	Virginia P. Brown	2249832
EPA 353.2 Rev. 2.0	05/25/2021			05/26/2021 09:55	Beverly Y. Sanders	2249826
	05/25/2021			05/26/2021 10:30	Beverly Y. Sanders	2249831
	05/25/2021			05/26/2021 15:36	Touraj Touran	2249825
	05/25/2021			05/26/2021 15:38	Touraj Touran	2249832
EPA 365.1 Rev. 2.0	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 12:03	Shengyu Ding	2249826
	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 12:04	Shengyu Ding	2249831
	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 13:01	Shengyu Ding	2249825
	05/25/2021	05/27/2021 13:22	Yen Ta	05/28/2021 13:02	Shengyu Ding	2249832
EPA 365.1 Rev. 2.0 dissolved	05/25/2021			05/25/2021 15:04	Ping Hua	2249827
	05/25/2021			05/25/2021 15:05	Ping Hua	2249834
	05/25/2021			05/25/2021 15:42	Ping Hua	2249828
	05/25/2021			05/25/2021 15:46	Ping Hua	2249833
EPA 8321B	05/25/2021	05/26/2021 13:00	Hoor Shaik	05/28/2021 20:11	Juyoung Kim	2249863
	05/25/2021	05/26/2021 13:00	Hoor Shaik	05/28/2021 21:21	Juyoung Kim	2249864
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 12:13	Juyoung Kim	2249863
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 13:13	Pramila Ghimire	2249863
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 13:27	Pramila Ghimire	2249864
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 14:54	Juyoung Kim	2249864
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 21:00	Pramila Ghimire	2249863
	05/25/2021	05/27/2021 09:30	Pramila Ghimire	05/27/2021 21:12	Pramila Ghimire	2249864
SM 2320 B-2011	05/25/2021			05/28/2021 02:09	Dale L. Simmons	2249829
	05/25/2021			05/28/2021 02:53	Dale L. Simmons	2249824

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	05/25/2021			05/28/2021 03:20	Dale L. Simmons	2249830
	05/25/2021			05/28/2021 04:07	Dale L. Simmons	2249823
SM 2340B	05/25/2021			06/03/2021 17:17	Betina Topolski	2249865
	05/25/2021			06/03/2021 17:33	Betina Topolski	2249866
SM 2540 D-2011	05/25/2021			05/27/2021 14:42	Yijie Li	2249823, 2249824, 2249829, 2249830
SM 4500 F-C-2011	05/25/2021			05/28/2021 02:09	Dale L. Simmons	2249829
	05/25/2021			05/28/2021 02:53	Dale L. Simmons	2249824
	05/25/2021			05/28/2021 03:20	Dale L. Simmons	2249830
	05/25/2021			05/28/2021 04:07	Dale L. Simmons	2249823
SM 5310 B-2011	05/25/2021			05/27/2021 08:55	Madeline Gruver	2249825
	05/25/2021			05/27/2021 09:07	Madeline Gruver	2249826
	05/25/2021			05/27/2021 09:20	Madeline Gruver	2249831
	05/25/2021			05/27/2021 10:00	Madeline Gruver	2249832