

Chemical Analysis Report

NW-DIST-2021-12-01-01

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-2021-11-29-20**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
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Certified by: Colin Wright, Program Administrator

Date Certified: 22-DEC-2021 12:56

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Bayou Texar Near Baars Park

Collection Date/Time: 11/30/2021 10:00

Field ID: G4NW0516

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292031	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P406924	
	SM 2320 B-2011	Total Alkalinity	23		mg CaCO3/L	P407160	
	SM 2540 D-2011	TSS	2	IA	mg/L	P407349	
	SM 4500 F-C-2011	Fluoride	0.17		mg F/L	P407165	
2292034	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P407081	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P407067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P406952	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P406883	
	SM 5310 B-2011	Organic Carbon	1.2		mg C/L	P407413	
2292037	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406904	
2292053	EPA 8321B	2,4-D	0.0020	U	ug/L	P406988	
		Acesulfame K	0.10	U	ug/L	P406948	MS
		AMPA	1.0	U	ug/L	P406948	
		2,4,5-T	0.0040	U	ug/L	P406988	
		Acetaminophen	0.0080	U	ug/L	P406988	
		Endothall	0.25	U	ug/L	P406948	
		Acetamiprid	0.0020	U	ug/L	P406988	
		Glufosinate	1.0	U	ug/L	P406948	
		Glyphosate	1.0	U	ug/L	P406948	
		Afidopyropen	0.0020	U	ug/L	P406988	
		Sucralose	0.34		ug/L	P406948	
		Bentazon	0.0016	I	ug/L	P406988	
		Benzovindiflupyr	0.0020	U	ug/L	P406988	
		Carbamazepine	0.0015	I	ug/L	P406988	
		Clothianidin	0.0020	U	ug/L	P406988	
		Dinotefuran	0.0020	U	ug/L	P406988	
		Diuron	0.0020	U	ug/L	P406988	
		Fenuron	0.016	U	ug/L	P406988	
		Fluridone	8.0E-04	U	ug/L	P406988	
		Imazapyr	0.012	I	ug/L	P406988	
		Hydrocodone	0.0020	U	ug/L	P406988	
		Ibuprofen	0.020	U	ug/L	P406988	
		Imidacloprid	0.026		ug/L	P406988	
		Linuron	0.0040	U	ug/L	P406988	RPD
		Mandestrobin	0.0020	U	ug/L	P406988	
		MCP	0.0040	U	ug/L	P406988	
		Naproxen	0.0080	U	ug/L	P406988	
		Primidone	0.0040	U	ug/L	P406988	
		Pyraclostrobin	0.0020	U	ug/L	P406988	
		Silvex	0.0040	U	ug/L	P406988	
		Thiamethoxam	0.0020	U	ug/L	P406988	
		Tolfenpyrad	0.0020	U	ug/L	P406988	
		Triclopyr	0.0040	U	ug/L	P406988	

Field ID: G4NW0516

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292056	EPA 200.7 Rev. 4.4	Calcium	34.3		mg/L	P406980	
		Iron	280	I	ug/L	P406980	
		Magnesium	92.7		mg/L	P406980	
		Strontium	541		ug/L	P406980	
		Tin	9.0	U	ug/L	P406980	
	EPA 200.8 Rev. 5.4	Vanadium	6.0	U	ug/L	P406980	
		Zinc	15	U	ug/L	P406980	
		Aluminum	95		ug/L	P406980	
		Antimony	0.20	U	ug/L	P406980	
		Arsenic	0.33	I	ug/L	P406980	
		Beryllium	0.040	U	ug/L	P406980	
		Cadmium	0.080	U	ug/L	P406980	
		Chromium	1.6	U	ug/L	P406980	
		Cobalt	0.41		ug/L	P406980	
		Copper	1.6	U	ug/L	P406980	
		Lead	0.80	U	ug/L	P406980	
		Manganese	28.5		ug/L	P406980	
		Molybdenum	0.60	U	ug/L	P406980	
		Nickel	2.0	U	ug/L	P406980	
		Selenium	0.80	U	ug/L	P406980	
		Silver	0.040	U	ug/L	P406980	

Ref. Method and Comment:

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

SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for magnesium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Bayou Texar 200 Meters Above Hwy 90 Bridge Collection Date/Time: 11/30/2021 10:45

Field ID: G4NW0402

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292032	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P406924	
	SM 2320 B-2011	Total Alkalinity	66		mg CaCO3/L	P407162	
	SM 2540 D-2011	TSS	5	IA	mg/L	P407352	
	SM 4500 F-C-2011	Fluoride	0.72		mg F/L	P407166	
2292035	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P407081	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P407067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P406953	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P406883	
	SM 5310 B-2011	Organic Carbon	2.3		mg C/L	P407177	
2292038	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406904	
2292054	EPA 8321B	2,4-D	0.0020	U	ug/L	P406988	
		Acesulfame K	0.10	U	ug/L	P406948	MS
		AMPA	1.0	U	ug/L	P406948	
		2,4,5-T	0.0040	U	ug/L	P406988	
		Acetaminophen	0.0080	U	ug/L	P406988	
		Endothall	0.25	U	ug/L	P406948	
		Acetamiprid	0.0020	U	ug/L	P406988	
		Glufosinate	1.0	U	ug/L	P406948	
		Glyphosate	1.0	U	ug/L	P406948	
		Afidopyropen	0.0020	U	ug/L	P406988	
		Sucralose	0.13		ug/L	P406948	
		Bentazon	0.0015	I	ug/L	P406988	
		Benzovindiflupyr	0.0020	U	ug/L	P406988	
		Carbamazepine	8.0E-04	U	ug/L	P406988	
		Clothianidin	0.0020	U	ug/L	P406988	
		Dinotefuran	0.0020	U	ug/L	P406988	
		Diuron	0.0020	U	ug/L	P406988	
		Fenuron	0.016	U	ug/L	P406988	
		Fluridone	8.0E-04	U	ug/L	P406988	
		Imazapyr	0.015	I	ug/L	P406988	
		Hydrocodone	0.0020	U	ug/L	P406988	
		Ibuprofen	0.020	U	ug/L	P406988	
		Imidacloprid	0.0071	I	ug/L	P406988	
		Linuron	0.0040	U	ug/L	P406988	RPD
		Mandestrobin	0.0020	U	ug/L	P406988	
		MCP	0.0040	U	ug/L	P406988	
		Naproxen	0.0080	U	ug/L	P406988	
		Primidone	0.0040	U	ug/L	P406988	
		Pyraclostrobin	0.0020	U	ug/L	P406988	
		Silvex	0.0040	U	ug/L	P406988	
		Thiamethoxam	0.0020	U	ug/L	P406988	
		Tolfenpyrad	0.0020	U	ug/L	P406988	
		Triclopyr	0.0040	U	ug/L	P406988	

Field ID: G4NW0402

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292057	EPA 200.7 Rev. 4.4	Calcium	195		mg/L	P406980	
		Iron	90	U	ug/L	P406980	
		Magnesium	645		mg/L	P406980	
		Strontium	3.60E+03		ug/L	P406980	
		Tin	30	U	ug/L	P406980	
		Vanadium	6.0	U	ug/L	P406980	
	EPA 200.8 Rev. 5.4	Zinc	22	I	ug/L	P406980	
		Aluminum	115		ug/L	P406980	
		Antimony	0.20	U	ug/L	P406980	
		Arsenic	1.06		ug/L	P406980	
		Beryllium	0.040	U	ug/L	P406980	
		Cadmium	0.080	U	ug/L	P406980	
		Chromium	1.6	U	ug/L	P406980	
		Cobalt	0.37		ug/L	P406980	
		Copper	1.6	U	ug/L	P406980	
		Lead	0.80	U	ug/L	P406980	
		Manganese	16.2		ug/L	P406980	
		Molybdenum	5.9		ug/L	P406980	
		Nickel	2.0	U	ug/L	P406980	
		Selenium	0.80	U	ug/L	P406980	
		Silver	0.040	U	ug/L	P406980	

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: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for magnesium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Trout Bayou

Collection Date/Time: 11/30/2021 12:15

Field ID: G4NW0443

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292028	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P406924	
	SM 2320 B-2011	Total Alkalinity	81		mg CaCO3/L	P407162	
	SM 2540 D-2011	TSS	3	UA	mg/L	P407351	
	SM 4500 F-C-2011	Fluoride	0.74		mg F/L	P407166	
2292029	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P407081	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P407067	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P406952	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P406883	
	SM 5310 B-2011	Organic Carbon	2.7		mg C/L	P407177	
2292030	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406904	

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: FB

Collection Date/Time: 11/30/2021 10:15

Field ID: FB_11302021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292033	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P406925	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P407030	
	SM 2540 D-2011	TSS	2	U	mg/L	P407349	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P407039	
2292036	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P407586	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P407066	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P406986	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P406889	
	SM 5310 B-2011	Organic Carbon	0.59	I	mg C/L	P407413	
2292039	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406904	
2292055	EPA 8321B	2,4-D	0.0020	U	ug/L	P406988	
		Acesulfame K	0.10	U	ug/L	P406948	MS
		2,4,5-T	0.0040	U	ug/L	P406988	
		AMPA	0.10	U	ug/L	P406948	
		Acetaminophen	0.0080	U	ug/L	P406988	
		Acetamiprid	0.0020	U	ug/L	P406988	
		Endothall	0.25	U	ug/L	P406948	
		Glufosinate	0.10	U	ug/L	P406948	
		Glyphosate	0.10	U	ug/L	P406948	
		Afidopyropen	0.0020	U	ug/L	P406988	
		Bentazon	8.0E-04	U	ug/L	P406988	
		Sucralose	0.010	U	ug/L	P406948	
		Benzovindiflupyr	0.0020	U	ug/L	P406988	
		Carbamazepine	8.0E-04	U	ug/L	P406988	
		Clothianidin	0.0020	U	ug/L	P406988	
		Dinotefuran	0.0020	U	ug/L	P406988	
		Diuron	0.0020	U	ug/L	P406988	
		Fenuron	0.016	U	ug/L	P406988	
		Fluridone	8.0E-04	U	ug/L	P406988	
		Imazapyr	0.0040	U	ug/L	P406988	
		Hydrocodone	0.0020	U	ug/L	P406988	
		Ibuprofen	0.020	U	ug/L	P406988	
		Imidacloprid	0.0020	U	ug/L	P406988	
		Linuron	0.0040	U	ug/L	P406988	RPD
		Mandestrobin	0.0020	U	ug/L	P406988	
		MCP	0.0040	U	ug/L	P406988	
		Naproxen	0.0080	U	ug/L	P406988	
		Primidone	0.0040	U	ug/L	P406988	
		Pyraclostrobin	0.0020	U	ug/L	P406988	
		Silvex	0.0040	U	ug/L	P406988	
		Thiamethoxam	0.0020	U	ug/L	P406988	
		Tolfenpyrad	0.0020	U	ug/L	P406988	
		Triclopyr	0.0040	U	ug/L	P406988	

Field ID: FB_11302021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2292058	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P407026	
		Iron	30	U	ug/L	P407026	
		Magnesium	0.040	U	mg/L	P407026	
		Strontium	2.0	U	ug/L	P407026	
		Tin	3.0	U	ug/L	P407026	
		Vanadium	2.0	U	ug/L	P407026	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P407026	
		Aluminum	5.0	U	ug/L	P407026	
		Antimony	0.050	U	ug/L	P407026	
		Arsenic	0.050	U	ug/L	P407026	
		Beryllium	0.010	U	ug/L	P407026	
		Cadmium	0.020	U	ug/L	P407026	
		Chromium	0.40	U	ug/L	P407026	
		Cobalt	0.020	U	ug/L	P407026	
		Copper	0.40	U	ug/L	P407026	
		Lead	0.20	U	ug/L	P407026	
		Manganese	0.10	U	ug/L	P407026	
		Molybdenum	0.15	U	ug/L	P407026	
		Nickel	0.50	U	ug/L	P407026	
		Selenium	0.20	U	ug/L	P407026	
		Silver	0.010	U	ug/L	P407026	

MS

Ref. Method and Comment:

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

SM 5310 B-2011: The result was confirmed on 12/15/2021.

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406924

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406925

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P406980

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P407026

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P406980

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
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P407026

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
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407081

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407586

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407066

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406952

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406953

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406986

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406883

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406889

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406904

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

Reference Method: EPA 8321B
Batch ID: P406948

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: P406988

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P406988

Component	Result	Code	Units
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	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: P407030

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

Reference Method: SM 2320 B-2011
Batch ID: P407160

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

Reference Method: SM 2320 B-2011
Batch ID: P407162

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

Reference Method: SM 2540 D-2011
Batch ID: P407349

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407351

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407352

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407039

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P407165

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407166

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P407177

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

Reference Method: SM 5310 B-2011
Batch ID: P407413

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: P406980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	98.5		P	85 - 115
Magnesium	103		P	85 - 115
Strontium	92.0		P	85 - 115
Tin	97.2		P	85 - 115
Vanadium	95.2		P	85 - 115
Zinc	95.9		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P407026

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	107		P	85 - 115
Magnesium	109		P	85 - 115
Strontium	101		P	85 - 115
Tin	105		P	85 - 115
Vanadium	103		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P406980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	98.1		P	85 - 115
Beryllium	93.2		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	99.7		P	85 - 115
Cobalt	95.8		P	85 - 115
Copper	96.7		P	85 - 115
Lead	97.8		P	85 - 115
Manganese	98.5		P	85 - 115
Molybdenum	101		P	85 - 115
Nickel	97.7		P	85 - 115
Selenium	95.3		P	85 - 115
Silver	99.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P407026

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	98.4		P	85 - 115
Beryllium	100		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	100		P	85 - 115
Cobalt	101		P	85 - 115
Copper	98.1		P	85 - 115
Lead	97.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P407026

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Manganese	99.5		P	85 - 115
Molybdenum	102		P	85 - 115
Nickel	98.2		P	85 - 115
Selenium	97.7		P	85 - 115
Silver	102		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407586

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: P407066

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407067

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406952

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: P406953

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: P406986

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406883

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

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P406883

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P406889

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P406904

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

Reference Method: EPA 8321B

Batch ID: P406948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	81.0		P	40 - 150
AMPA	111		P	40 - 160
Endothall	71.4		P	40 - 150
Glufosinate	96.1		P	40 - 160
Glyphosate	115		P	40 - 160
Sucralose	100		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P406988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	99.1		P	40 - 150
2,4,5-T	109		P	40 - 150
Acetaminophen	100		P	30 - 150
Acetamiprid	96.1		P	40 - 150
Afidopyropen	70.4		P	40 - 150
Bentazon	95.1		P	30 - 150
Benzovindiflupyr	75.6		P	40 - 150
Carbamazepine	86.7		P	40 - 150
Clothianidin	112		P	40 - 150
Dinotefuran	89.9		P	40 - 150
Diuron	103		P	40 - 150
Fenuron	94.3		P	40 - 150
Fluridone	91.8		P	40 - 150
Hydrocodone	92.9		P	40 - 150
Ibuprofen	57.7		P	40 - 150
Imazapyr	120		P	40 - 150
Imidacloprid	103		P	40 - 150
Linuron	107		P	40 - 150
Mandestrobin	86.2		P	40 - 150
MCPP	104		P	40 - 150
Naproxen	140		P	40 - 150
Primidone	91.4		P	40 - 150
Pyraclostrobin	83.7		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P406988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silvex	106		P	40 - 150
Thiamethoxam	105		P	40 - 150
Tolfenpyrad	36.4		P	30 - 150
Triclopyr	129		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P407030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.9		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P407160

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.8		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P407162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P407039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P407165

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

Reference Method: SM 4500 F-C-2011
Batch ID: P407166

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P407177

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P406980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290941	Calcium	95.4		P	70 - 130
2290941	Iron	97.1	94.4	P/P	70 - 130
2290941	Strontium	91.9	87.8	P/P	70 - 130
2290941	Tin	93.7	89.0	P/P	70 - 130
2290941	Vanadium	100	97.2	P/P	70 - 130
2290941	Zinc	97.9	95.3	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P407026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292107	Calcium	105	103	P/P	80 - 120
2292107	Iron	108	105	P/P	80 - 120
2292107	Magnesium	110	108	P/P	80 - 120
2292107	Strontium	101	101	P/P	80 - 120
2292107	Tin	108	107	P/P	80 - 120
2292107	Vanadium	105	105	P/P	80 - 120
2292107	Zinc	107	106	P/P	80 - 120
2292629	Calcium	102		P	80 - 120
2292629	Iron	108		P	80 - 120
2292629	Magnesium	109		P	80 - 120
2292629	Strontium	102		P	80 - 120
2292629	Tin	107		P	80 - 120
2292629	Vanadium	106		P	80 - 120
2292629	Zinc	110		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P406980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290941	Aluminum	102	101	P/P	70 - 130
2290941	Antimony	104	102	P/P	70 - 130
2290941	Arsenic	111	109	P/P	70 - 130
2290941	Beryllium	102	102	P/P	70 - 130
2290941	Cadmium	102	100	P/P	70 - 130
2290941	Chromium	99.2	98.1	P/P	70 - 130
2290941	Cobalt	103	102	P/P	70 - 130
2290941	Copper	101	100	P/P	70 - 130
2290941	Lead	104	104	P/P	70 - 130
2290941	Manganese	95.9	93.2	P/P	70 - 130
2290941	Molybdenum	115	114	P/P	70 - 130
2290941	Nickel	104	103	P/P	70 - 130
2290941	Selenium	96.9	95.2	P/P	70 - 130
2290941	Silver	93.9	93.9	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P407026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292107	Aluminum	98.8	98.9	P/P	80 - 120
2292107	Antimony	102	102	P/P	80 - 120
2292107	Arsenic	96.5	98.0	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P407026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292107	Beryllium	92.3	94.6	P/P	80 - 120
2292107	Cadmium	102	102	P/P	80 - 120
2292107	Chromium	103	103	P/P	80 - 120
2292107	Cobalt	100	101	P/P	80 - 120
2292107	Copper	96.4	96.5	P/P	80 - 120
2292107	Lead	97.8	97.5	P/P	80 - 120
2292107	Manganese	100	100	P/P	80 - 120
2292107	Molybdenum	101	102	P/P	80 - 120
2292107	Nickel	102	103	P/P	80 - 120
2292107	Selenium	49.8	56.4	F/F	80 - 120
2292107	Silver	101	101	P/P	80 - 120
2292629	Aluminum	99.3		P	80 - 120
2292629	Antimony	101		P	80 - 120
2292629	Arsenic	97.3		P	80 - 120
2292629	Beryllium	96.8		P	80 - 120
2292629	Cadmium	101		P	80 - 120
2292629	Chromium	102		P	80 - 120
2292629	Cobalt	101		P	80 - 120
2292629	Copper	95.4		P	80 - 120
2292629	Lead	97.9		P	80 - 120
2292629	Manganese	99.0		P	80 - 120
2292629	Molybdenum	102		P	80 - 120
2292629	Nickel	96.4		P	80 - 120
2292629	Selenium	91.8		P	80 - 120
2292629	Silver	99.9		P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290447	Ammonia-N	94.4	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292008	Ammonia-N	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407066

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292100	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407067

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291553	Kjeldahl Nitrogen	102	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291040	NO2NO3-N	99.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292090	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292007	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291494	Total-P	91.2	93.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406889

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292008	Total-P	102	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292037	O-Phosphate-P	100	97.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P406948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291412	Acesulfame K	168	177	F/F	40 - 150
2291412	AMPA	82.8	97.7	P/P	40 - 160
2291412	Endothall	79.4	81.4	P/P	40 - 150
2291412	Glufosinate	78.5	89.1	P/P	40 - 160
2291412	Glyphosate	79.7	85.3	P/P	40 - 160
2291412	Sucralose	104	109	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P406988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291477	2,4,5-T	141	108	P/P	40 - 150
2291477	Acetaminophen	88.9	114	P/P	30 - 150
2291477	Acetamiprid	92.1	94.8	P/P	40 - 150
2291477	Afidopyropen	82.6	82.8	P/P	40 - 150
2291477	Benzovindiflupyr	80.3	87.3	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P406988

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291477	Carbamazepine	82.8	94.2	P/P	40 - 150
2291477	Clothianidin	118	109	P/P	40 - 150
2291477	Dinotefuran	107	120	P/P	40 - 150
2291477	Diuron	80.8	76.5	P/P	40 - 150
2291477	Fenuron	81.6	84.0	P/P	40 - 150
2291477	Hydrocodone	101	103	P/P	40 - 150
2291477	Ibuprofen	68.2	61.1	P/P	40 - 150
2291477	Imazapyr	98.1	125	P/P	40 - 150
2291477	Imidacloprid	128	130	P/P	40 - 150
2291477	Linuron	102	69.9	P/P	40 - 150
2291477	Mandestrobin	78.1	87.6	P/P	40 - 150
2291477	MCPPP	97.0	95.3	P/P	40 - 150
2291477	Naproxen	59.6	78.6	P/P	40 - 150
2291477	Primidone	102	103	P/P	40 - 150
2291477	Pyraclostrobin	76.2	85.4	P/P	40 - 150
2291477	Silvex	87.9	92.7	P/P	40 - 150
2291477	Thiamethoxam	132	146	P/P	40 - 150
2291477	Tolfenpyrad	44.8	57.0	P/P	30 - 150
2291477	Triclopyr	110	82.5	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P407039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291991	Fluoride	98.9	98.9	P/P	92 - 107

Reference Method: SM 4500 F-C-2011

Batch ID: P407166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293021	Fluoride	98.2	99.6	P/P	92 - 107

Reference Method: SM 5310 B-2011

Batch ID: P407177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292469	Organic Carbon	104	105	P/P	85 - 115

Reference Method: SM 5310 B-2011

Batch ID: P407413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293022	Organic Carbon	92.8	93.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292004	Turbidity	2.37	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292085	Turbidity	16.9	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P406980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290941	Calcium	2.19	Spike	P	0 - 20
2290941	Iron	2.62	Spike	P	0 - 20
2290941	Magnesium	2.11	Spike	P	0 - 20
2290941	Strontium	2.88	Spike	P	0 - 20
2290941	Tin	5.16	Spike	P	0 - 20
2290941	Vanadium	3.30	Spike	P	0 - 20
2290941	Zinc	2.76	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P407026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292107	Calcium	1.86	Spike	P	0 - 20
2292107	Iron	1.67	Spike	P	0 - 20
2292107	Magnesium	1.80	Spike	P	0 - 20
2292107	Strontium	0.650	Spike	P	0 - 20
2292107	Tin	0.731	Spike	P	0 - 20
2292107	Vanadium	0.00138	Spike	P	0 - 20
2292107	Zinc	0.952	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P406980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290941	Aluminum	0.829	Spike	P	0 - 20
2290941	Antimony	1.05	Spike	P	0 - 20
2290941	Arsenic	0.984	Spike	P	0 - 20
2290941	Beryllium	0.162	Spike	P	0 - 20
2290941	Cadmium	1.51	Spike	P	0 - 20
2290941	Chromium	1.08	Spike	P	0 - 20
2290941	Cobalt	0.736	Spike	P	0 - 20
2290941	Copper	1.45	Spike	P	0 - 20
2290941	Lead	0.760	Spike	P	0 - 20
2290941	Manganese	1.84	Spike	P	0 - 20
2290941	Molybdenum	0.849	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P406980

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290941	Nickel	1.48	Spike	P	0 - 20
2290941	Selenium	1.70	Spike	P	0 - 20
2290941	Silver	0.0688	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P407026

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292107	Aluminum	0.143	Spike	P	0 - 20
2292107	Antimony	0.135	Spike	P	0 - 20
2292107	Arsenic	1.47	Spike	P	0 - 20
2292107	Beryllium	2.23	Spike	P	0 - 20
2292107	Cadmium	0.171	Spike	P	0 - 20
2292107	Chromium	0.311	Spike	P	0 - 20
2292107	Cobalt	0.994	Spike	P	0 - 20
2292107	Copper	0.0656	Spike	P	0 - 20
2292107	Lead	0.264	Spike	P	0 - 20
2292107	Manganese	0.284	Spike	P	0 - 20
2292107	Molybdenum	0.987	Spike	P	0 - 20
2292107	Nickel	0.397	Spike	P	0 - 20
2292107	Selenium	12.5	Spike	P	0 - 20
2292107	Silver	0.278	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P407081

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290447	Ammonia-N	1.43	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P407586

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292008	Ammonia-N	0.900	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P407066

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292100	Kjeldahl Nitrogen	0.637	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P407067

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291553	Kjeldahl Nitrogen	1.44	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P406952

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291040	NO2NO3-N	0.767	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P406953

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292090	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P406986

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292007	NO2NO3-N	0.477	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P406883

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291494	Total-P	2.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P406889

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292008	Total-P	3.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P406904

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292037	O-Phosphate-P	2.32	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P406948

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291412	Acesulfame K	5.18	Spike	P	0 - 30
2291412	AMPA	16.5	Spike	P	0 - 30
2291412	Endothall	2.51	Spike	P	0 - 30
2291412	Glufosinate	12.6	Spike	P	0 - 30
2291412	Glyphosate	6.81	Spike	P	0 - 30
2291412	Sucralose	4.48	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P406988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291477	2,4-D	20.9	Spike	P	0 - 30
2291477	2,4,5-T	26.4	Spike	P	0 - 30
2291477	Acetaminophen	24.6	Spike	P	0 - 30
2291477	Acetamiprid	2.92	Spike	P	0 - 30
2291477	Afidopyropen	0.164	Spike	P	0 - 30
2291477	Bentazon	27.0	Spike	P	0 - 30
2291477	Benzovindiflupyr	8.39	Spike	P	0 - 30
2291477	Carbamazepine	12.3	Spike	P	0 - 30
2291477	Clothianidin	8.05	Spike	P	0 - 30
2291477	Dinotefuran	11.0	Spike	P	0 - 30
2291477	Diuron	4.69	Spike	P	0 - 30
2291477	Fenuron	2.92	Spike	P	0 - 30
2291477	Fluridone	2.80	Spike	P	0 - 30
2291477	Hydrocodone	2.54	Spike	P	0 - 30
2291477	Ibuprofen	11.0	Spike	P	0 - 30
2291477	Imazapyr	24.3	Spike	P	0 - 30
2291477	Imidacloprid	1.74	Spike	P	0 - 30
2291477	Linuron	37.2	Spike	F	0 - 30
2291477	Mandestrobin	11.5	Spike	P	0 - 30
2291477	MCPP	1.86	Spike	P	0 - 30
2291477	Naproxen	27.6	Spike	P	0 - 30
2291477	Primidone	1.01	Spike	P	0 - 30
2291477	Pyraclostrobin	11.4	Spike	P	0 - 30
2291477	Silvex	5.28	Spike	P	0 - 30
2291477	Thiamethoxam	9.57	Spike	P	0 - 30
2291477	Tolfenpyrad	24.0	Spike	P	0 - 30
2291477	Triclopyr	28.5	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P407030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291991	Total Alkalinity	4.56	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P407160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292610	Total Alkalinity	0.950	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P407162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293021	Total Alkalinity	0.867	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P407039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291991	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P407165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292610	Fluoride	0.472	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P407166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293021	Fluoride	1.01	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P407177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292469	Organic Carbon	0.808	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P407413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293022	Organic Carbon	0.123	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2292053

Field Sample ID: G4NW0516

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	84.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	121	P	30 - 160
EPA 8321B	Diuron-d6	80.6	P	30 - 160
EPA 8321B	Endothall-d6	82.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	85.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	48.3	P	30 - 160
EPA 8321B	Primidone-d5	134	P	30 - 160
EPA 8321B	Sucralose-d6	87.2	P	30 - 160

Lab Sample ID: 2292054

Field Sample ID: G4NW0402

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	124	P	30 - 160
EPA 8321B	Acetaminophen-d4	89.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	112	P	30 - 160
EPA 8321B	Diuron-d6	83.4	P	30 - 160
EPA 8321B	Endothall-d6	77.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	75.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	62.8	P	30 - 160
EPA 8321B	Primidone-d5	150	P	30 - 160
EPA 8321B	Sucralose-d6	89.9	P	30 - 160

Lab Sample ID: 2292055

Field Sample ID: FB_11302021

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	98.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	67.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.9	P	30 - 160
EPA 8321B	Diuron-d6	72.6	P	30 - 160
EPA 8321B	Endothall-d6	78.2	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	90.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.6	P	30 - 160
EPA 8321B	Primidone-d5	90.9	P	30 - 160
EPA 8321B	Sucralose-d6	87.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A109150

Included Lab Sample IDs: 2292030, 2292037, 2292038, 2292039

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.9	P/P	90 - 110
O-Phosphate-P	99.1	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109159

Included Lab Sample IDs: 2292028, 2292031, 2292032, 2292033

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109175

Included Lab Sample IDs: 2292029, 2292034, 2292035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110
NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A109189

Included Lab Sample IDs: 2292053, 2292054, 2292055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	96.6	99.5	P/P	60 - 160
AMPA	99.5	103	P/P	60 - 160
Glufosinate	96.9	97.1	P/P	60 - 160
Glufosinate	97.1	98.4	P/P	60 - 160
Glyphosate	101	107	P/P	60 - 160
Glyphosate	107	106	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109190

Included Lab Sample IDs: 2292036

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109201

Included Lab Sample IDs: 2292056, 2292057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.1	98.5	P/P	90 - 110
Antimony	92.7	93.1	P/P	90 - 110
Arsenic	95.1	95.2	P/P	90 - 110
Beryllium	91.7	91.7	P/P	90 - 110
Cadmium	95.8	97.6	P/P	90 - 110
Chromium	92.5	92.9	P/P	90 - 110
Cobalt	90.5	90.3	P/P	90 - 110
Copper	92.6	93.1	P/P	90 - 110
Lead	91.9	92.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109201

Included Lab Sample IDs: 2292056, 2292057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Manganese	92.3	92.9	P/P	90 - 110
Molybdenum	95.8	96.4	P/P	90 - 110
Nickel	93.5	93.4	P/P	90 - 110
Selenium	93.4	94.8	P/P	90 - 110
Silver	95.0	95.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A109203

Included Lab Sample IDs: 2292033

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.0	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109203

Included Lab Sample IDs: 2292033

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

Reference Method: EPA 8321B

Run ID: A109218

Included Lab Sample IDs: 2292053, 2292054, 2292055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	77.4	66.8	P/P	60 - 160
Endothall	70.4	64.9	P/P	60 - 160
Sucralose	106	104	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109220

Included Lab Sample IDs: 2292029, 2292034, 2292035, 2292036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109228

Included Lab Sample IDs: 2292029, 2292034, 2292035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	98.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A109229

Included Lab Sample IDs: 2292057, 2292058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.7	99.0	P/P	90 - 110
Iron	103	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A109229

Included Lab Sample IDs: 2292057, 2292058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	102	102	P/P	90 - 110
Magnesium	103	102	P/P	90 - 110
Strontium	100	99.0	P/P	90 - 110
Tin	102	101	P/P	90 - 110
Tin	99.8	101	P/P	90 - 110
Vanadium	97.5	98.1	P/P	90 - 110
Zinc	99.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109241

Included Lab Sample IDs: 2292029, 2292034, 2292035, 2292036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	102	P/P	90 - 110
Kjeldahl Nitrogen	102	99.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109251

Included Lab Sample IDs: 2292058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.0	97.1	P/P	90 - 110
Antimony	94.1	94.2	P/P	90 - 110
Arsenic	99.1	95.6	P/P	90 - 110
Beryllium	93.9	94.5	P/P	90 - 110
Cadmium	97.4	97.1	P/P	90 - 110
Chromium	95.8	96.7	P/P	90 - 110
Copper	95.8	92.7	P/P	90 - 110
Lead	93.8	92.6	P/P	90 - 110
Manganese	94.6	95.8	P/P	90 - 110
Molybdenum	98.3	96.7	P/P	90 - 110
Nickel	95.7	92.5	P/P	90 - 110
Selenium	96.1	96.1	P/P	90 - 110
Silver	97.8	96.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A109252

Included Lab Sample IDs: 2292028, 2292031, 2292032

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	100	P/P	90 - 110
Total Alkalinity	97.8	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109252

Included Lab Sample IDs: 2292028, 2292031, 2292032

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A109260

Included Lab Sample IDs: 2292029, 2292035

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A109280

Included Lab Sample IDs: 2292056, 2292057

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	96.9	94.3	P/P	90 - 110
Iron	99.4	96.9	P/P	90 - 110
Magnesium	98.3	96.2	P/P	90 - 110
Strontium	102	102	P/P	90 - 110
Tin	101	101	P/P	90 - 110
Vanadium	97.5	97.1	P/P	90 - 110
Zinc	98.1	96.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109281

Included Lab Sample IDs: 2292058

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	96.8	96.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A109350

Included Lab Sample IDs: 2292053, 2292054, 2292055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	119	69.6	P/P	50 - 150
2,4,5-T	100	94.5	P/P	50 - 150
Acetaminophen	94.6	91.9	P/P	60 - 160
Acetamiprid	103	96.1	P/P	50 - 150
Afidopyropen	104	102	P/P	50 - 150
Bentazon	110	111	P/P	50 - 160
Benzovindiflupyr	83.0	118	P/P	50 - 150
Carbamazepine	107	96.2	P/P	60 - 150
Clothianidin	106	115	P/P	60 - 150
Dinotefuran	118	93.1	P/P	50 - 150
Diuron	109	109	P/P	60 - 160
Fenuron	100	102	P/P	60 - 150
Fluridone	99.7	111	P/P	60 - 160
Hydrocodone	99.0	98.4	P/P	60 - 150
Ibuprofen	113	69.9	P/P	50 - 160
Imazapyr	94.6	85.4	P/P	50 - 150
Imidacloprid	75.3	94.6	P/P	60 - 150
Linuron	92.2	84.6	P/P	60 - 150
Mandestrobin	106	111	P/P	50 - 150
MCPP	94.1	110	P/P	50 - 150
Naproxen	141	92.8	P/P	50 - 160
Primidone	111	83.0	P/P	60 - 150
Pyraclostrobin	117	108	P/P	60 - 150
Silvex	96.8	97.9	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A109350

Included Lab Sample IDs: 2292053, 2292054, 2292055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thiamethoxam	111	113	P/P	50 - 150
Tolfenpyrad	101	61.8	P/P	60 - 150
Triclopyr	108	87.3	P/P	50 - 150

Reference Method: SM 5310 B-2011

Run ID: A109369

Included Lab Sample IDs: 2292034, 2292036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109447

Included Lab Sample IDs: 2292036

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.7	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						2.37	
	Turbidity						16.9	
EPA 200.7 Rev. 4.4	Calcium	102	95.4					2.19
	Calcium	105	105	103	102			1.86
	Iron	98.5	97.1	94.4				2.62
	Iron	107	108	105	108			1.67
	Magnesium	103						2.11
	Magnesium	109	110	108	109			1.80
	Strontium	92.0	91.9	87.8				2.88
	Strontium	101	101	101	102			0.650
	Tin	97.2	93.7	89.0				5.16
	Tin	105	108	107	107			0.731
	Vanadium	95.2	100	97.2				3.30
	Vanadium	103	105	105	106			0.0013
	Zinc	95.9	97.9	95.3				2.76
	Zinc	104	107	106	110			0.952
EPA 200.8 Rev. 5.4	Aluminum	100	102	101				0.829
	Aluminum	101	99.3	98.8	98.9			0.143
	Antimony	100	104	102				1.05
	Antimony	101	101	102	102			0.135
	Arsenic	98.1	111	109				0.984
	Arsenic	98.4	97.3	96.5	98.0			1.47
	Beryllium	93.2	102	102				0.162
	Beryllium	100	96.8	92.3	94.6			2.23
	Cadmium	101	102	100				1.51
	Cadmium	103	101	102	102			0.171
	Chromium	99.7	99.2	98.1				1.08
	Chromium	100	102	103	103			0.311
	Cobalt	95.8	103	102				0.736
	Cobalt	101	101	100	101			0.994
	Copper	96.7	101	100				1.45
	Copper	98.1	95.4	96.4	96.5			0.0656
	Lead	97.8	104	104				0.760
	Lead	97.6	97.9	97.8	97.5			0.264
	Manganese	98.5	95.9	93.2				1.84
	Manganese	99.5	99.0	100	100			0.284
	Molybdenum	101	115	114				0.849
	Molybdenum	102	102	101	102			0.987
	Nickel	97.7	104	103				1.48
	Nickel	98.2	102	103	96.4			0.397
	Selenium	95.3	96.9	95.2				1.70
	Selenium	97.7	91.8	49.8	56.4			12.5
	Silver	99.2	93.9	93.9				0.0688
	Silver	102	99.9	101	101			0.278
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	94.4	96.0				1.43
	Ammonia-N	101	99.2	100				0.900
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	103	104				0.637
	Kjeldahl Nitrogen	104	102	100				1.44
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.8	101				0.767
	NO2NO3-N	100	102	102				0.489
	NO2NO3-N	102	101	100				0.477
EPA 365.1 Rev. 2.0	Total-P	102	91.2	93.6				2.57
	Total-P	104	102	106				3.46
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	100	97.8				2.32

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 8321B	2,4-D	99.1				
	2,4,5-T	109	141	108		
	Acesulfame K	81.0	168	177		
	Acetaminophen	100	88.9	114		
	Acetamiprid	96.1	92.1	94.8		
	Afidopyropen	70.4	82.6	82.8		
	AMPA	111	82.8	97.7		
	Bentazon	95.1				
	Benzovindiflupyr	75.6	80.3	87.3		
	Carbamazepine	86.7	82.8	94.2		
	Clothianidin	112	118	109		
	Dinotefuran	89.9	107	120		
	Diuron	103	80.8	76.5		
	Endothall	71.4	79.4	81.4		
	Fenuron	94.3	81.6	84.0		
	Fluridone	91.8				
	Glufosinate	96.1	78.5	89.1		
	Glyphosate	115	79.7	85.3		
	Hydrocodone	92.9	101	103		
	Ibuprofen	57.7	68.2	61.1		
	Imazapyr	120	98.1	125		
	Imidacloprid	103	128	130		
	Linuron	107	102	69.9		
	Mandestrobin	86.2	78.1	87.6		
	MCPP	104	97.0	95.3		
	Naproxen	140	59.6	78.6		
	Primidone	91.4	102	103		
	Pyraclostrobin	83.7	76.2	85.4		
	Silvex	106	87.9	92.7		
	Sucralose	100	104	109		
	Thiamethoxam	105	132	146		
	Tolfenpyrad	36.4	44.8	57.0		
	Triclopyr	129	110	82.5		
SM 2320 B-2011	Total Alkalinity	98.9				4.56
	Total Alkalinity	97.8				0.950
	Total Alkalinity	97.1				0.867
SM 4500 F-C-2011	Fluoride	102	98.9	98.9		0.0
	Fluoride	99.9				0.472
	Fluoride	100	98.2	99.6		1.01
SM 5310 B-2011	Organic Carbon	105	104	105		0.808
	Organic Carbon	94.4	92.8	93.0		0.123

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2292028, 2292031, 2292032, 2292033
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2292056, 2292057, 2292058
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2292056, 2292057, 2292058
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2292029, 2292034, 2292035, 2292036
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2292029, 2292034, 2292035, 2292036
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2292029, 2292034, 2292035, 2292036

Reference Method Descriptions

Method	Description	Associated Samples
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2292029, 2292034, 2292035, 2292036
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2292030, 2292037, 2292038, 2292039
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2292053, 2292054, 2292055
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2292028, 2292031, 2292032, 2292033
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2292028, 2292031, 2292032, 2292033
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2292028, 2292031, 2292032, 2292033
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2292029, 2292034, 2292035, 2292036

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	12/01/2021			12/01/2021 17:34	Khloe J Berg	2292028, 2292031, 2292032, 2292033
EPA 200.7 Rev. 4.4	12/01/2021	12/03/2021 10:15	Vijayalakshmi Reddy	12/06/2021 16:02	Josef B Mick	2292057
	12/01/2021	12/03/2021 10:15	Vijayalakshmi Reddy	12/08/2021 14:59	Josef B Mick	2292056
	12/01/2021	12/03/2021 10:15	Vijayalakshmi Reddy	12/08/2021 15:06	Josef B Mick	2292057
	12/01/2021	12/06/2021 10:13	Emily M Philpot	12/06/2021 22:27	Josef B Mick	2292058
EPA 200.8 Rev. 5.4	12/01/2021	12/03/2021 10:15	Vijayalakshmi Reddy	12/03/2021 23:58	Alexander Thompson	2292056
	12/01/2021	12/03/2021 10:15	Vijayalakshmi Reddy	12/04/2021 00:07	Alexander Thompson	2292057
	12/01/2021	12/06/2021 10:13	Emily M Philpot	12/07/2021 15:44	Alexander Thompson	2292058
	12/01/2021	12/06/2021 10:13	Emily M Philpot	12/08/2021 14:57	Alexander Thompson	2292058
EPA 350.1 Rev. 2.0	12/01/2021			12/06/2021 15:00	Ping Hua	2292029
	12/01/2021			12/06/2021 15:01	Ping Hua	2292034
	12/01/2021			12/06/2021 15:02	Ping Hua	2292035
	12/01/2021			12/14/2021 12:48	Ping Hua	2292036
EPA 351.2 Rev. 2.0	12/01/2021	12/06/2021 12:33	Benjamin T. Nordmann	12/07/2021 11:59	Alexandra J Mattheus	2292036
	12/01/2021	12/06/2021 12:33	Benjamin T. Nordmann	12/07/2021 12:23	Alexandra J Mattheus	2292029
	12/01/2021	12/06/2021 12:33	Benjamin T. Nordmann	12/07/2021 12:25	Alexandra J Mattheus	2292034
	12/01/2021	12/06/2021 12:33	Benjamin T. Nordmann	12/07/2021 12:27	Alexandra J Mattheus	2292035
EPA 353.2 Rev. 2.0	12/01/2021			12/02/2021 11:23	Nathaniel J Jones	2292029
	12/01/2021			12/02/2021 11:38	Nathaniel J Jones	2292035
	12/01/2021			12/02/2021 11:44	Nathaniel J Jones	2292034
	12/01/2021			12/03/2021 10:25	Beverly Y. Sanders	2292036
EPA 365.1 Rev. 2.0	12/01/2021	12/02/2021 14:15	Simonne.V. Calhoun	12/06/2021 12:23	Shengyu Ding	2292029
	12/01/2021	12/02/2021 14:15	Simonne.V. Calhoun	12/06/2021 12:24	Shengyu Ding	2292034
	12/01/2021	12/02/2021 14:15	Simonne.V. Calhoun	12/06/2021 12:25	Shengyu Ding	2292035
	12/01/2021	12/02/2021 14:15	Simonne.V. Calhoun	12/06/2021 12:53	Shengyu Ding	2292036
EPA 365.1 Rev. 2.0 dissolved	12/01/2021			12/01/2021 15:20	James L Waggeberby	2292037
	12/01/2021			12/01/2021 15:22	James L Waggeberby	2292030
	12/01/2021			12/01/2021 15:27	James L Waggeberby	2292038
	12/01/2021			12/01/2021 15:28	James L Waggeberby	2292039
EPA 8321B	12/01/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 00:02	Juyoung Kim	2292053
	12/01/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 00:13	Juyoung Kim	2292054
	12/01/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 00:56	Juyoung Kim	2292055
	12/01/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 15:35	Manjita Shrestha	2292053
	12/01/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 15:50	Manjita Shrestha	2292054
	12/01/2021	12/02/2021 15:00	Juyoung Kim	12/03/2021 16:04	Manjita Shrestha	2292055
	12/01/2021	12/06/2021 09:00	Hoor Shaik	12/11/2021 09:35	Juyoung Kim	2292053
	12/01/2021	12/06/2021 09:00	Hoor Shaik	12/11/2021 10:10	Juyoung Kim	2292054
	12/01/2021	12/06/2021 09:00	Hoor Shaik	12/11/2021 10:45	Juyoung Kim	2292055
SM 2320 B-2011	12/01/2021			12/04/2021 07:10	Dale L. Simmons	2292033
	12/01/2021			12/07/2021 22:07	Dale L. Simmons	2292031

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	12/01/2021			12/08/2021 03:20	Dale L. Simmons	2292028
	12/01/2021			12/08/2021 03:32	Dale L. Simmons	2292032
SM 2540 D-2011	12/01/2021			12/03/2021 15:35	Yijie Li	2292028, 2292031, 2292032, 2292033
SM 4500 F-C-2011	12/01/2021			12/04/2021 07:10	Dale L. Simmons	2292033
	12/01/2021			12/07/2021 22:07	Dale L. Simmons	2292031
	12/01/2021			12/07/2021 23:27	Dale L. Simmons	2292028
	12/01/2021			12/08/2021 00:11	Dale L. Simmons	2292032
SM 5310 B-2011	12/01/2021			12/08/2021 01:43	Khloe J Berg	2292029
	12/01/2021			12/08/2021 01:58	Khloe J Berg	2292035
	12/01/2021			12/13/2021 21:53	Khloe J Berg	2292034
	12/01/2021			12/13/2021 22:10	Khloe J Berg	2292036