

Chemical Analysis Report

NE-DIST-2021-11-24-01

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

Event Description: **Nassau Lakes**
Request ID: **RQ-2021-10-25-12**
Customer: **NE-DIST**
Project ID: **SMP**

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

Date Certified: 16-DEC-2021 09:11

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: PALESTINE LAKE CENTER

Collection Date/Time: 11/23/2021 11:55

Field ID: 19010044

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291340	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P406764	
	EPA 300.0 Rev. 2.1	Chloride	6.4		mg Cl/L	P407155	
		Sulfate	2.3		mg SO4/L	P407158	
	SM 2120 B-2011	Color (true)	180		PCU	P406763	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P407029	
	SM 2540 C-2011	TDS	45		mg/L	P407178	
	SM 2540 D-2011	TSS	3	I	mg/L	P407179	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P407038	
2291341	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P407082	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P406982	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P406774	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P406827	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P407164	
2291342	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406762	
2291351	EPA 8321B	2,4-D	0.0020	U	ug/L	P406759	
		Acesulfame K	0.10	U	ug/L	P406666	
		2,4,5-T	0.0040	U	ug/L	P406759	
		AMPA	0.10	U	ug/L	P406666	
		Acetaminophen	0.0080	U	ug/L	P406759	
		Endothall	0.25	U	ug/L	P406666	
		Acetamiprid	0.0020	UJ	ug/L	P406759	RPD
		Glufosinate	0.10	U	ug/L	P406666	
		Glyphosate	0.10	U	ug/L	P406666	
		Afidopyropen	0.0020	UJ	ug/L	P406759	MS, RPD
		Bentazon	8.0E-04	U	ug/L	P406759	
		Sucralose	0.010	U	ug/L	P406666	
		Benzovindiflupyr	0.0020	U	ug/L	P406759	
		Carbamazepine	8.0E-04	U	ug/L	P406759	
		Clothianidin	0.0020	U	ug/L	P406759	
		Dinotefuran	0.0020	U	ug/L	P406759	
		Diuron	0.0020	U	ug/L	P406759	
		Fenuron	0.016	U	ug/L	P406759	
		Fluridone	8.0E-04	U	ug/L	P406759	
		Imazapyr	0.019		ug/L	P406759	
		Hydrocodone	0.0020	U	ug/L	P406759	
		Ibuprofen	0.020	U	ug/L	P406759	
		Imidacloprid	0.0020	UJ	ug/L	P406759	MS
		Linuron	0.0040	U	ug/L	P406759	
		Mandestrobin	0.0020	U	ug/L	P406759	
		MCPP	0.0040	U	ug/L	P406759	
		Naproxen	0.0080	U	ug/L	P406759	
		Primidone	0.0040	U	ug/L	P406759	
		Pyraclostrobin	0.0020	U	ug/L	P406759	

Field ID: 19010044

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291351	EPA 8321B	Thiamethoxam	0.0020	UJ	ug/L	P406759	MS
		Tolfenpyrad	0.0020	U	ug/L	P406759	
		Triclopyr	0.0040	U	ug/L	P406759	
2291352	EPA 200.7 Rev. 4.4	Barium	9.4		ug/L	P406808	
		Calcium	1.72		mg/L	P406808	
		Iron	440		ug/L	P406808	
		Magnesium	1.16		mg/L	P406808	
		Manganese	27.6		ug/L	P406808	
		Potassium	0.39	I	mg/L	P406808	
		Sodium	3.8		mg/L	P406808	
		Zinc	5.0	U	ug/L	P406808	
	EPA 200.8 Rev. 5.4	Aluminum	267		ug/L	P406808	
		Antimony	0.086	I	ug/L	P406808	
		Arsenic	0.38		ug/L	P406808	
		Beryllium	0.010	I	ug/L	P406808	
		Boron**	18.6		ug/L	P406808	
		Cadmium	0.020	U	ug/L	P406808	
		Chromium	0.40	U	ug/L	P406808	
		Copper	0.40	U	ug/L	P406808	
		Lead	0.63		ug/L	P406808	
		Nickel	0.50	U	ug/L	P406808	
		Selenium	0.20	U	ug/L	P406808	
		Silver	0.010	U	ug/L	P406808	
		Thallium	0.10	U	ug/L	P406808	
	SM 2340B	Hardness	9.1		mg/L	P406808	

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: Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 12/06/2021.

Sample Location: OCEAN POND CENTER

Collection Date/Time: 11/23/2021 10:45

Field ID: 21010011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291343	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P406764	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P407155	
		Sulfate	1.1		mg SO4/L	P407158	
		Color (true)	250		PCU	P406763	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P407029	
	SM 2540 C-2011	TDS	47		mg/L	P407178	
	SM 2540 D-2011	TSS	3	IA	mg/L	P407179	
2291345	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P407038	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P407085	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P406993	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P406774	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P406827	
2291347	SM 5310 B-2011	Organic Carbon	17		mg C/L	P407164	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P406762	
2291353	EPA 200.7 Rev. 4.4	Barium	7.7		ug/L	P406808	
		Calcium	1.64		mg/L	P406808	
		Iron	1.18E+03		ug/L	P406808	
		Magnesium	0.73		mg/L	P406808	
		Manganese	22.8		ug/L	P406808	
		Potassium	0.30	U	mg/L	P406808	
		Sodium	3.5		mg/L	P406808	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P406808	
		Aluminum	439		ug/L	P406808	
		Antimony	0.063	I	ug/L	P406808	
		Arsenic	0.82		ug/L	P406808	
		Beryllium	0.030	I	ug/L	P406808	
		Boron**	15.6		ug/L	P406808	
		Cadmium	0.613		ug/L	P406808	
		Chromium	0.43	I	ug/L	P406808	
		Copper	0.47	I	ug/L	P406808	
		Lead	0.95		ug/L	P406808	
		Nickel	0.50	U	ug/L	P406808	
		Selenium	0.20	U	ug/L	P406808	
		Silver	0.010	U	ug/L	P406808	
		Thallium	0.10	U	ug/L	P406808	
		Hardness	7.1		mg/L	P406808	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The cadmium and lead result was confirmed in the undigested sample on 12/06/2021.

Sample Location: FB_11232021

Collection Date/Time: 11/23/2021 12:00

Field ID: FB_11232021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291344	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P406764	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P407155	
		Sulfate	0.20	U	mg SO4/L	P407158	
		Color (true)	2.5	U	PCU	P406763	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P407029	
	SM 2540 C-2011	TDS	15	U	mg/L	P407178	
	SM 2540 D-2011	TSS	2	U	mg/L	P407179	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P407038	
2291346	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P407085	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P406993	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P406774	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P406827	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P407164	
2291348	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406762	
2291354	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P406808	
		Calcium	0.075	U	mg/L	P406808	
		Iron	30	U	ug/L	P406808	
		Magnesium	0.040	U	mg/L	P406808	
		Manganese	1.0	U	ug/L	P406808	
		Potassium	0.30	U	mg/L	P406808	
		Sodium	0.50	U	mg/L	P406808	
		Zinc	5.0	U	ug/L	P406808	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P406808	
		Antimony	0.050	U	ug/L	P406808	
		Arsenic	0.050	U	ug/L	P406808	
		Beryllium	0.010	U	ug/L	P406808	
		Boron**	2.0	U	ug/L	P406808	
		Cadmium	0.020	U	ug/L	P406808	
		Chromium	0.40	U	ug/L	P406808	
		Copper	0.40	U	ug/L	P406808	
		Lead	0.20	U	ug/L	P406808	
		Nickel	0.50	U	ug/L	P406808	
		Selenium	0.20	U	ug/L	P406808	
		Silver	0.010	U	ug/L	P406808	
		Thallium	0.10	U	ug/L	P406808	
	SM 2340B	Hardness	0.35	U	mg/L	P406808	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P406759	
		Acesulfame K	0.10	U	ug/L	P406666	
		2,4,5-T	0.0040	U	ug/L	P406759	
		AMPA	0.10	U	ug/L	P406666	
		Acetaminophen	0.0080	U	ug/L	P406759	
		Endothall	0.25	U	ug/L	P406666	
		Acetamiprid	0.0020	U	ug/L	P406759	RPD

Field ID: FB_11232021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2291358	EPA 8321B	Glufosinate	0.10	U	ug/L	P406666	
		Glyphosate	0.10	U	ug/L	P406666	
		Afidopyropen	0.0020	U	ug/L	P406759	MS, RPD
		Bentazon	8.0E-04	U	ug/L	P406759	
		Sucralose	0.010	U	ug/L	P406666	
		Benzovindiflupyr	0.0020	U	ug/L	P406759	
		Carbamazepine	8.0E-04	U	ug/L	P406759	
		Clothianidin	0.0020	U	ug/L	P406759	
		Dinotefuran	0.0020	U	ug/L	P406759	
		Diuron	0.0020	U	ug/L	P406759	
		Fenuron	0.016	U	ug/L	P406759	
		Fluridone	8.0E-04	U	ug/L	P406759	
		Imazapyr	0.0040	U	ug/L	P406759	
		Hydrocodone	0.0020	U	ug/L	P406759	
		Ibuprofen	0.020	U	ug/L	P406759	
		Imidacloprid	0.0020	U	ug/L	P406759	MS
		Linuron	0.0040	U	ug/L	P406759	
		Mandestrobin	0.0020	U	ug/L	P406759	
		MCP	0.0040	U	ug/L	P406759	
		Naproxen	0.0080	U	ug/L	P406759	
		Primidone	0.0040	U	ug/L	P406759	
		Pyraclostrobin	0.0020	U	ug/L	P406759	
		Thiamethoxam	0.0020	U	ug/L	P406759	MS
		Tolfenpyrad	0.0020	U	ug/L	P406759	
		Triclopyr	0.0040	U	ug/L	P406759	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P406764

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P406808

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P406808

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
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407155

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407158

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407082

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407085

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406982

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406993

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406774

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406827

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406762

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

Reference Method: EPA 8321B
Batch ID: P406666

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: P406759

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P406759

Component	Result	Code	Units
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	0.090		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	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011

Batch ID: P406763

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P407029

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

Reference Method: SM 2540 C-2011

Batch ID: P407178

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P407179

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011

Batch ID: P407038

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P407164

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: P406808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	97.0		P	85 - 115
Calcium	102		P	85 - 115
Iron	102		P	85 - 115
Magnesium	101		P	85 - 115
Manganese	99.0		P	85 - 115
Potassium	95.9		P	85 - 115
Sodium	97.9		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P406808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	101		P	85 - 115
Beryllium	101		P	85 - 115
Boron	97.8		P	85 - 115
Cadmium	99.5		P	85 - 115
Chromium	102		P	85 - 115
Copper	102		P	85 - 115
Lead	99.0		P	85 - 115
Nickel	102		P	85 - 115
Selenium	102		P	85 - 115
Silver	102		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407155

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407158

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407082

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407085

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406982

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406993

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: P406774

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406827

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: P406762

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

Reference Method: EPA 8321B
Batch ID: P406666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	107		P	40 - 150
AMPA	93.4		P	40 - 160
Endothall	87.0		P	40 - 150
Glufosinate	95.7		P	40 - 160
Glyphosate	97.4		P	40 - 160
Sucralose	98.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P406759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	76.6		P	40 - 150
2,4,5-T	92.6		P	40 - 150
Acetaminophen	77.8		P	30 - 150
Acetamiprid	91.2		P	40 - 150
Afidopyropen	53.4		P	40 - 150
Bentazon	102		P	30 - 150
Benzovindiflupyr	84.8		P	40 - 150
Carbamazepine	83.7		P	40 - 150
Clothianidin	71.6		P	40 - 150
Dinotefuran	89.3		P	40 - 150
Diuron	65.4		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P406759

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	114		P	40 - 150
Fluridone	84.3		P	40 - 150
Hydrocodone	103		P	40 - 150
Ibuprofen	54.8		P	40 - 150
Imazapyr	86.5		P	40 - 150
Imidacloprid	73.2		P	40 - 150
Linuron	72.3		P	40 - 150
Mandestrobin	92.1		P	40 - 150
MCPP	96.5		P	40 - 150
Naproxen	103		P	40 - 150
Primidone	61.5		P	40 - 150
Pyraclostrobin	77.6		P	40 - 150
Thiamethoxam	83.9		P	40 - 150
Tolfenpyrad	35.6		P	30 - 150
Triclopyr	77.1		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P406763

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P407029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.6		P	94 - 106

Reference Method: SM 4500 F-C-2011

Batch ID: P407038

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

Reference Method: SM 5310 B-2011

Batch ID: P407164

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P406808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291009	Barium	96.1	96.6	P/P	80 - 120
2291009	Calcium	99.0		P	80 - 120
2291009	Iron	106	106	P/P	80 - 120
2291009	Magnesium	101		P	80 - 120
2291009	Manganese	101	102	P/P	80 - 120
2291009	Potassium	102	102	P/P	80 - 120
2291009	Sodium	102	100	P/P	80 - 120
2291009	Zinc	105	108	P/P	80 - 120
2291225	Barium	95.9		P	80 - 120
2291225	Iron	105		P	80 - 120
2291225	Magnesium	106		P	80 - 120
2291225	Manganese	100		P	80 - 120
2291225	Potassium	108		P	80 - 120
2291225	Sodium	105		P	80 - 120
2291225	Zinc	104		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P406808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291009	Aluminum	102	102	P/P	80 - 120
2291009	Antimony	104	104	P/P	80 - 120
2291009	Arsenic	101	102	P/P	80 - 120
2291009	Beryllium	97.7	100	P/P	80 - 120
2291009	Boron	98.1	102	P/P	80 - 120
2291009	Cadmium	103	103	P/P	80 - 120
2291009	Chromium	103	104	P/P	80 - 120
2291009	Copper	100	101	P/P	80 - 120
2291009	Lead	100	101	P/P	80 - 120
2291009	Nickel	101	102	P/P	80 - 120
2291009	Selenium	101	102	P/P	80 - 120
2291009	Silver	103	105	P/P	80 - 120
2291009	Thallium	104	105	P/P	80 - 120
2291225	Aluminum	96.6		P	80 - 120
2291225	Antimony	104		P	80 - 120
2291225	Arsenic	99.0		P	80 - 120
2291225	Beryllium	99.5		P	80 - 120
2291225	Boron	98.2		P	80 - 120
2291225	Cadmium	102		P	80 - 120
2291225	Chromium	105		P	80 - 120
2291225	Copper	95.2		P	80 - 120
2291225	Lead	101		P	80 - 120
2291225	Nickel	101		P	80 - 120
2291225	Selenium	101		P	80 - 120
2291225	Silver	103		P	80 - 120
2291225	Thallium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P407155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291243	Chloride	98.9		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291468	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291243	Sulfate	97.0		P	90 - 110
2291468	Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291244	Ammonia-N	98.2	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290676	Ammonia-N	99.4	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291244	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291402	Kjeldahl Nitrogen	95.7	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291341	NO2NO3-N	95.0	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291430	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291245	O-Phosphate-P	94.4	95.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P406666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290921	Acesulfame K	123	119	P/P	40 - 150
2290921	AMPA	100	104	P/P	40 - 160
2290921	Endothall	88.2	89.2	P/P	40 - 150
2290921	Glufosinate	101	102	P/P	40 - 160
2290921	Glyphosate	90.8	94.6	P/P	40 - 160
2290921	Sucralose	92.6	100	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P406759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2291351	2,4-D	108	98.7	P/P	40 - 150
2291351	2,4,5-T	113	95.8	P/P	40 - 150
2291351	Acetaminophen	111	95.2	P/P	30 - 150
2291351	Acetamiprid	90.7	61.8	P/P	40 - 150
2291351	Afidopyropen	37.5	22.1	F/F	40 - 150
2291351	Bentazon	57.7	52.6	P/P	30 - 150
2291351	Benzovindiflupyr	73.7	76.1	P/P	40 - 150
2291351	Carbamazepine	82.5	88.4	P/P	40 - 150
2291351	Clothianidin	138	107	P/P	40 - 150
2291351	Dinotefuran	128	127	P/P	40 - 150
2291351	Diuron	79.9	66.4	P/P	40 - 150
2291351	Fenuron	90.6	90.5	P/P	40 - 150
2291351	Fluridone	86.6	84.6	P/P	40 - 150
2291351	Hydrocodone	96.3	98.7	P/P	40 - 150
2291351	Ibuprofen	44.7	51.4	P/P	40 - 150
2291351	Imazapyr	103	92.3	P/P	40 - 150
2291351	Imidacloprid	200	185	F/F	40 - 150
2291351	Linuron	81.9	66.4	P/P	40 - 150
2291351	Mandestrobin	86.6	69.5	P/P	40 - 150
2291351	MCPP	84.9	70.2	P/P	40 - 150
2291351	Naproxen	73.3	79.3	P/P	40 - 150
2291351	Primidone	67.9	91.4	P/P	40 - 150
2291351	Pyraclostrobin	81.9	60.6	P/P	40 - 150
2291351	Thiamethoxam	154	146	F/P	40 - 150
2291351	Tolfenpyrad	50.2	45.3	P/P	30 - 150
2291351	Triclopyr	99.3	77.5	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P407038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292330	Fluoride	98.3	101	P/P	92 - 107

Reference Method: SM 5310 B-2011

Batch ID: P407164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290758	Organic Carbon	98.2	97.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P406764

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291217	Turbidity	1.92	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P406808

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291009	Barium	0.479	Spike	P	0 - 20
2291009	Calcium	0.262	Spike	P	0 - 20
2291009	Iron	0.706	Spike	P	0 - 20
2291009	Magnesium	0.874	Spike	P	0 - 20
2291009	Manganese	0.921	Spike	P	0 - 20
2291009	Potassium	0.0124	Spike	P	0 - 20
2291009	Sodium	0.832	Spike	P	0 - 20
2291009	Zinc	3.37	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P406808

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291009	Aluminum	0.000411	Spike	P	0 - 20
2291009	Antimony	0.0428	Spike	P	0 - 20
2291009	Arsenic	0.777	Spike	P	0 - 20
2291009	Beryllium	2.82	Spike	P	0 - 20
2291009	Boron	3.17	Spike	P	0 - 20
2291009	Cadmium	0.697	Spike	P	0 - 20
2291009	Chromium	0.261	Spike	P	0 - 20
2291009	Copper	0.232	Spike	P	0 - 20
2291009	Lead	1.03	Spike	P	0 - 20
2291009	Nickel	1.19	Spike	P	0 - 20
2291009	Selenium	0.789	Spike	P	0 - 20
2291009	Silver	1.31	Spike	P	0 - 20
2291009	Thallium	1.40	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P407155

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291243	Chloride	1.04	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P407158

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291243	Sulfate	1.90	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291244	Ammonia-N	0.613	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290676	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291244	Kjeldahl Nitrogen	0.196	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291402	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291341	NO2NO3-N	0.525	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291430	Total-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291245	O-Phosphate-P	0.844	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P406666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290921	Acesulfame K	3.07	Spike	P	0 - 30
2290921	AMPA	4.01	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P406666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290921	Endothall	1.17	Spike	P	0 - 30
2290921	Glufosinate	1.65	Spike	P	0 - 30
2290921	Glyphosate	4.10	Spike	P	0 - 30
2290921	Sucralose	5.70	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P406759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291351	2,4-D	8.54	Spike	P	0 - 30
2291351	2,4,5-T	16.2	Spike	P	0 - 30
2291351	Acetaminophen	15.4	Spike	P	0 - 30
2291351	Acetamiprid	37.9	Spike	F	0 - 30
2291351	Afidopyropen	51.9	Spike	F	0 - 30
2291351	Bentazon	9.30	Spike	P	0 - 30
2291351	Benzovindiflupyr	3.17	Spike	P	0 - 30
2291351	Carbamazepine	6.89	Spike	P	0 - 30
2291351	Clothianidin	24.6	Spike	P	0 - 30
2291351	Dinotefuran	0.861	Spike	P	0 - 30
2291351	Diuron	18.5	Spike	P	0 - 30
2291351	Fenuron	0.0903	Spike	P	0 - 30
2291351	Fluridone	2.44	Spike	P	0 - 30
2291351	Hydrocodone	2.46	Spike	P	0 - 30
2291351	Ibuprofen	14.1	Spike	P	0 - 30
2291351	Imazapyr	8.84	Spike	P	0 - 30
2291351	Imidacloprid	8.03	Spike	P	0 - 30
2291351	Linuron	20.9	Spike	P	0 - 30
2291351	Mandestrobin	21.9	Spike	P	0 - 30
2291351	MCPP	19.0	Spike	P	0 - 30
2291351	Naproxen	7.87	Spike	P	0 - 30
2291351	Primidone	29.5	Spike	P	0 - 30
2291351	Pyraclostrobin	29.9	Spike	P	0 - 30
2291351	Thiamethoxam	5.48	Spike	P	0 - 30
2291351	Tolfenpyrad	10.4	Spike	P	0 - 30
2291351	Triclopyr	24.7	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P406763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291243	Color (true)	0.134	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P407029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292330	Total Alkalinity	1.87	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P407178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2291216	TDS	1.72	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P407038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292330	Fluoride	1.47	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P407164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290758	Organic Carbon	0.715	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2291351

Field Sample ID: 19010044

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	103	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.2	P	30 - 160
EPA 8321B	Diuron-d6	67.9	P	30 - 160
EPA 8321B	Endothall-d6	72.8	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	81.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	62.3	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	95.6	P	30 - 160

Lab Sample ID: 2291358

Field Sample ID: FB_11232021

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	97.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	78.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	87.1	P	30 - 160
EPA 8321B	Diuron-d6	87.8	P	30 - 160
EPA 8321B	Endothall-d6	80.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	95.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	55.0	P	30 - 160
EPA 8321B	Primidone-d5	79.5	P	30 - 160
EPA 8321B	Sucralose-d6	96.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A109089

Included Lab Sample IDs: 2291342, 2291347, 2291348

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.5	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A109090

Included Lab Sample IDs: 2291340, 2291343, 2291344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	99.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109091

Included Lab Sample IDs: 2291340, 2291343, 2291344

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

Reference Method: EPA 8321B

Run ID: A109092

Included Lab Sample IDs: 2291351, 2291358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	97.6	94.9	P/P	60 - 160
Endothall	88.3	74.5	P/P	60 - 160
Sucralose	101	100	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A109101

Included Lab Sample IDs: 2291351, 2291358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	106	111	P/P	60 - 160
Glufosinate	97.3	91.7	P/P	60 - 160
Glyphosate	98.7	96.9	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109108

Included Lab Sample IDs: 2291341, 2291345, 2291346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A109157

Included Lab Sample IDs: 2291352, 2291353, 2291354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	102	P/P	95 - 105
Barium	100	98.0	P/P	90 - 110
Barium	94.5	100	P/P	90 - 110
Calcium	101	103	P/P	90 - 110
Calcium	103	102	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A109157

Included Lab Sample IDs: 2291352, 2291353, 2291354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	102	P/P	90 - 110
Iron	102	104	P/P	90 - 110
Iron	103	102	P/P	95 - 105
Iron	104	103	P/P	90 - 110
Magnesium	102	104	P/P	90 - 110
Magnesium	102	102	P/P	95 - 105
Magnesium	104	103	P/P	90 - 110
Manganese	101	101	P/P	95 - 105
Manganese	102	101	P/P	90 - 110
Manganese	99.4	102	P/P	90 - 110
Potassium	96.6	98.6	P/P	90 - 110
Potassium	97.6	97.8	P/P	95 - 105
Potassium	98.6	96.6	P/P	90 - 110
Sodium	101	100	P/P	95 - 105
Sodium	101	99.6	P/P	90 - 110
Sodium	98.8	101	P/P	90 - 110
Zinc	101	99.7	P/P	95 - 105
Zinc	105	104	P/P	90 - 110
Zinc	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109194

Included Lab Sample IDs: 2291341, 2291345, 2291346

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109202

Included Lab Sample IDs: 2291352, 2291353, 2291354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	93.2	92.4	P/P	90 - 110
Antimony	96.5	93.5	P/P	90 - 110
Arsenic	95.1	94.2	P/P	90 - 110
Arsenic	99.1	95.7	P/P	90 - 110
Beryllium	94.4	93.8	P/P	90 - 110
Beryllium	96.6	94.5	P/P	90 - 110
Boron	92.1	98.0	P/P	90 - 110
Boron	97.3	97.8	P/P	90 - 110
Cadmium	95.5	95.1	P/P	90 - 110
Cadmium	99.0	96.6	P/P	90 - 110
Chromium	95.1	95.2	P/P	90 - 110
Chromium	96.0	94.0	P/P	90 - 110
Copper	93.1	92.3	P/P	90 - 110
Copper	97.4	94.5	P/P	90 - 110
Lead	94.6	94.3	P/P	90 - 110
Lead	94.8	93.4	P/P	90 - 110
Nickel	94.4	93.8	P/P	90 - 110
Nickel	96.7	95.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109202

Included Lab Sample IDs: 2291352, 2291353, 2291354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	98.4	97.2	P/P	90 - 110
Selenium	99.4	96.1	P/P	90 - 110
Silver	98.4	97.3	P/P	90 - 110
Silver	98.7	97.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A109203

Included Lab Sample IDs: 2291340, 2291343, 2291344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109203

Included Lab Sample IDs: 2291340, 2291343, 2291344

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109213

Included Lab Sample IDs: 2291341, 2291345, 2291346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.7	95.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109225

Included Lab Sample IDs: 2291352, 2291353, 2291354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	94.9	92.4	P/P	90 - 110
Aluminum	95.6	93.6	P/P	90 - 110
Thallium	91.2	90.1	P/P	90 - 110
Thallium	93.2	92.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109228

Included Lab Sample IDs: 2291341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109230

Included Lab Sample IDs: 2291345, 2291346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.9	97.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A109256

Included Lab Sample IDs: 2291340, 2291343, 2291344

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

Reference Method: SM 5310 B-2011

Run ID: A109257

Included Lab Sample IDs: 2291341, 2291345, 2291346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A109350

Included Lab Sample IDs: 2291351, 2291358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	72.4	110	P/P	50 - 150
2,4,5-T	94.6	116	P/P	50 - 150
Acetaminophen	95.0	103	P/P	60 - 160
Acetamiprid	101	104	P/P	50 - 150
Afidopyropen	96.7	109	P/P	50 - 150
Bentazon	101	118	P/P	50 - 160
Benzovindiflupyr	104	118	P/P	50 - 150
Carbamazepine	96.0	90.5	P/P	60 - 150
Clothianidin	121	138	P/P	60 - 150
Dinotefuran	96.9	103	P/P	50 - 150
Diuron	107	118	P/P	60 - 160
Fenuron	97.4	105	P/P	60 - 150
Fluridone	83.9	111	P/P	60 - 160
Hydrocodone	96.9	106	P/P	60 - 150
Ibuprofen	76.6	82.6	P/P	50 - 160
Imazapyr	81.8	119	P/P	50 - 150
Imidacloprid	101	104	P/P	60 - 150
Linuron	126	114	P/P	60 - 150
Mandestrobin	116	104	P/P	50 - 150
MCPP	88.6	97.8	P/P	50 - 150
Naproxen	89.1	158	P/P	50 - 160
Primidone	70.6	127	P/P	60 - 150
Pyraclostrobin	106	93.6	P/P	60 - 150
Thiamethoxam	101	120	P/P	50 - 150
Tolfenpyrad	77.2	79.7	P/P	60 - 150
Triclopyr	83.8	86.8	P/P	50 - 150

* 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						1.92	
EPA 200.7 Rev. 4.4	Barium	97.0	96.1	96.6	95.9			0.479
	Calcium	102	99.0					0.262
	Iron	102	106	106	105			0.706
	Magnesium	101	101	106				0.874
	Manganese	99.0	101	102	100			0.921
	Potassium	95.9	102	102	108			0.0124
	Sodium	97.9	102	100	105			0.832
	Zinc	101	105	108	104			3.37
EPA 200.8 Rev. 5.4	Aluminum	102	102	102	96.6			0.0004
	Antimony	101	104	104	104			0.0428
	Arsenic	101	101	102	99.0			0.777
	Beryllium	101	97.7	100	99.5			2.82
	Boron	97.8	98.1	102	98.2			3.17
	Cadmium	99.5	103	103	102			0.697
	Chromium	102	105	103	104			0.261
	Copper	102	100	101	95.2			0.232
	Lead	99.0	100	101	101			1.03
	Nickel	102	101	102	101			1.19
	Selenium	102	101	102	101			0.789
	Silver	102	103	105	103			1.31
	Thallium	101	105	104	105			1.40
EPA 300.0 Rev. 2.1	Chloride	100	98.9	101			1.04	
	Sulfate	98.4	97.0	97.9			1.90	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	98.2	99.0				0.613
	Ammonia-N	97.6	99.4	98.4				1.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	101	102				0.196
	Kjeldahl Nitrogen	104	95.7	97.2				1.40
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	95.0	95.5				0.525
EPA 365.1 Rev. 2.0	Total-P	104	105	103				1.49
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	94.4	95.2				0.844
EPA 8321B	2,4-D	76.6	108	98.7				8.54
	2,4,5-T	92.6	113	95.8				16.2
	Acesulfame K	107	123	119				3.07
	Acetaminophen	77.8	111	95.2				15.4
	Acetamiprid	91.2	90.7	61.8				37.9
	Afidopyropen	53.4	37.5	22.1				51.9
	AMPA	93.4	100	104				4.01
	Bentazon	102	57.7	52.6				9.30
	Benzovindiflupyr	84.8	73.7	76.1				3.17
	Carbamazepine	83.7	82.5	88.4				6.89
	Clothianidin	71.6	138	107				24.6
	Dinotefuran	89.3	128	127				0.861
	Diuron	65.4	79.9	66.4				18.5
	Endothall	87.0	88.2	89.2				1.17
	Fenuron	114	90.6	90.5				0.0903
	Fluridone	84.3	86.6	84.6				2.44
	Glufosinate	95.7	101	102				1.65
	Glyphosate	97.4	90.8	94.6				4.10
	Hydrocodone	103	96.3	98.7				2.46
	Ibuprofen	54.8	44.7	51.4				14.1
	Imazapyr	86.5	103	92.3				8.84
	Imidacloprid	73.2	200	185				8.03
	Linuron	72.3	81.9	66.4				20.9

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Mandestrobin	92.1	86.6	69.5		21.9
	MCCP	96.5	84.9	70.2		19.0
	Naproxen	103	73.3	79.3		7.87
	Primidone	61.5	67.9	91.4		29.5
	Pyraclostrobin	77.6	81.9	60.6		29.9
	Sucralose	98.4	92.6	100		5.70
	Thiamethoxam	83.9	154	146		5.48
	Tolfenpyrad	35.6	50.2	45.3		10.4
	Triclopyr	77.1	99.3	77.5		24.7
SM 2120 B-2011	Color (true)	99.4			0.134	
SM 2320 B-2011	Total Alkalinity	99.6			1.87	
SM 2540 C-2011	TDS				1.72	
SM 4500 F-C-2011	Fluoride	102	98.3	101		1.47
SM 5310 B-2011	Organic Carbon	93.0	98.2	97.2		0.715

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2291340, 2291343, 2291344
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2291352, 2291353, 2291354
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2291352, 2291353, 2291354
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2291340, 2291343, 2291344
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2291340, 2291343, 2291344
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2291341, 2291345, 2291346
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2291341, 2291345, 2291346
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2291341, 2291345, 2291346
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2291341, 2291345, 2291346
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2291342, 2291347, 2291348
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2291351, 2291358
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2291340, 2291343, 2291344
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2291340, 2291343, 2291344
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2291352, 2291353, 2291354
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2291340, 2291343, 2291344
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2291340, 2291343, 2291344
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2291340, 2291343, 2291344
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2291341, 2291345, 2291346

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	11/24/2021			11/24/2021 15:37	Khloe J Berg	2291340, 2291343, 2291344
EPA 200.7 Rev. 4.4	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/01/2021 14:43	Josef B Mick	2291354
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/01/2021 18:18	Josef B Mick	2291352
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/01/2021 18:56	Josef B Mick	2291353
EPA 200.8 Rev. 5.4	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/03/2021 15:04	Emily M Philpot	2291354
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/03/2021 18:41	Emily M Philpot	2291352
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/03/2021 18:50	Emily M Philpot	2291353
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/06/2021 12:51	Alexander Thompson	2291354
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/06/2021 15:30	Alexander Thompson	2291352
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/06/2021 15:37	Alexander Thompson	2291353
	11/24/2021	11/30/2021 10:30	Vijayalakshmi Reddy	12/07/2021 07:12	James L Waggeberby	2291340
EPA 300.0 Rev. 2.1	11/24/2021			12/07/2021 07:24	James L Waggeberby	2291343
	11/24/2021			12/07/2021 07:37	James L Waggeberby	2291344
	11/24/2021			12/06/2021 15:30	Ping Hua	2291341
EPA 350.1 Rev. 2.0	11/24/2021			12/06/2021 15:39	Ping Hua	2291345
	11/24/2021			12/06/2021 15:41	Ping Hua	2291346
	11/24/2021	12/03/2021 12:03	Benjamin T. Nordmann	12/06/2021 09:41	Alexandra J Mattheus	2291341
EPA 351.2 Rev. 2.0	11/24/2021	12/03/2021 12:03	Benjamin T. Nordmann	12/06/2021 09:46	Alexandra J Mattheus	2291345
	11/24/2021	12/03/2021 12:03	Benjamin T. Nordmann	12/06/2021 09:48	Alexandra J Mattheus	2291346
EPA 353.2 Rev. 2.0	11/24/2021			11/29/2021 09:53	Beverly Y. Sanders	2291341
	11/24/2021			11/29/2021 10:06	Beverly Y. Sanders	2291345
	11/24/2021			11/29/2021 10:07	Beverly Y. Sanders	2291346
EPA 365.1 Rev. 2.0	11/24/2021	12/01/2021 13:15	Simonne.V. Calhoun	12/03/2021 12:28	Shengyu Ding	2291346
	11/24/2021	12/01/2021 13:15	Simonne.V. Calhoun	12/03/2021 12:31	Shengyu Ding	2291341
	11/24/2021	12/01/2021 13:15	Simonne.V. Calhoun	12/03/2021 12:39	Shengyu Ding	2291345
EPA 365.1 Rev. 2.0 dissolved	11/24/2021			11/24/2021 15:26	James L Waggeberby	2291342
	11/24/2021			11/24/2021 15:27	James L Waggeberby	2291347
	11/24/2021			11/24/2021 15:28	James L Waggeberby	2291348
EPA 8321B	11/24/2021	11/24/2021 11:30	Juyoung Kim	11/24/2021 11:52	Juyoung Kim	2291351
	11/24/2021	11/24/2021 11:30	Juyoung Kim	11/24/2021 12:03	Juyoung Kim	2291358
	11/24/2021	11/24/2021 11:30	Juyoung Kim	11/24/2021 15:47	Manjita Shrestha	2291351
	11/24/2021	11/24/2021 11:30	Juyoung Kim	11/24/2021 16:02	Manjita Shrestha	2291358
	11/24/2021	11/24/2021 13:00	Manjita Shrestha	12/10/2021 08:47	Juyoung Kim	2291351
	11/24/2021	11/24/2021 13:00	Manjita Shrestha	12/10/2021 09:22	Juyoung Kim	2291358
SM 2120 B-2011	11/24/2021			11/24/2021 15:15	Madeline Gruver	2291344
	11/24/2021			11/24/2021 15:16	Madeline Gruver	2291340
	11/24/2021			11/24/2021 15:17	Madeline Gruver	2291343
SM 2320 B-2011	11/24/2021			12/04/2021 00:26	Dale L. Simmons	2291340
	11/24/2021			12/04/2021 00:34	Dale L. Simmons	2291343
	11/24/2021			12/04/2021 00:42	Dale L. Simmons	2291344

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2340B	11/24/2021			12/01/2021 14:43	Josef B Mick	2291354
	11/24/2021			12/01/2021 18:18	Josef B Mick	2291352
	11/24/2021			12/01/2021 18:56	Josef B Mick	2291353
SM 2540 C-2011	11/24/2021			11/29/2021 15:32	Yijie Li	2291340, 2291343, 2291344
SM 2540 D-2011	11/24/2021			11/29/2021 14:36	Yijie Li	2291340, 2291343, 2291344
SM 4500 F-C-2011	11/24/2021			12/04/2021 00:26	Dale L. Simmons	2291340
	11/24/2021			12/04/2021 00:34	Dale L. Simmons	2291343
	11/24/2021			12/04/2021 00:42	Dale L. Simmons	2291344
SM 5310 B-2011	11/24/2021			12/06/2021 22:23	Khloe J Berg	2291341
	11/24/2021			12/06/2021 22:38	Khloe J Berg	2291345
	11/24/2021			12/06/2021 22:53	Khloe J Berg	2291346