

Chemical Analysis Report

NE-DIST-2021-08-11-01

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

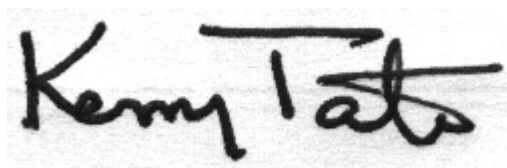
Event Description: **LSJR Lake 2021**
Request ID: **RQ-2021-08-09-17**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

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

Date Certified: 02-SEP-2021 12:57

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: Lake Broward North

Collection Date/Time: 08/10/2021 11:00

Field ID: G2NE1219

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268521	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P402345	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P402551	
		Sulfate	10		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	10		PCU	P402348	
	SM 2320 B-2011	Total Alkalinity	2.4	I	mg CaCO3/L	P402593	
	SM 2540 C-2011	TDS	55		mg/L	P402859	
	SM 2540 D-2011	TSS	2	I	mg/L	P402750	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P402596	
2268523	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P402460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P402966	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P402440	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P402464	MS
	SM 5310 B-2011	Organic Carbon	4.9		mg C/L	P402919	
2268525	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P402313	
2268532	EPA 8321B	2,4-D	0.34		ug/L	P402303	
		Acesulfame K	0.10	U	ug/L	P402297	
		2,4,5-T	0.0040	U	ug/L	P402303	
		AMPA	0.10	U	ug/L	P402297	
		Acetaminophen	0.0080	U	ug/L	P402303	
		Acetamiprid	0.0020	U	ug/L	P402303	
		Endothall	0.25	U	ug/L	P402297	
		Glufosinate	0.10	U	ug/L	P402297	
		Glyphosate	0.10	U	ug/L	P402297	
		Afidopyropen	0.0020	U	ug/L	P402303	
		Bentazon	8.0E-04	U	ug/L	P402303	
		Sucralose	0.21		ug/L	P402297	
		Benzovindiflupyr	0.0020	U	ug/L	P402303	
		Carbamazepine	8.0E-04	U	ug/L	P402303	
		Clothianidin	0.0020	U	ug/L	P402303	
		Dinotefuran	0.0020	U	ug/L	P402303	
		Diuron	0.0020	U	ug/L	P402303	
		Fenuron	0.016	U	ug/L	P402303	
		Fluridone	9.4E-04	I	ug/L	P402303	
		Imazapyr	0.033		ug/L	P402303	
		Hydrocodone	0.0020	U	ug/L	P402303	
		Ibuprofen	0.020	U	ug/L	P402303	
		Imidacloprid	0.0020	U	ug/L	P402303	
		Linuron	0.0040	U	ug/L	P402303	
		Mandestrobin	0.0020	U	ug/L	P402303	
		MCP	0.0020	U	ug/L	P402303	
		Naproxen	0.0080	U	ug/L	P402303	
		Primidone	0.0040	U	ug/L	P402303	
		Pyraclostrobin	0.0020	U	ug/L	P402303	

Field ID: G2NE1219

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268532	EPA 8321B	Thiamethoxam	0.0020	U	ug/L	P402303	
		Tolfenpyrad	0.0020	U	ug/L	P402303	
		Triclopyr	0.0040	U	ug/L	P402303	
2268534	EPA 200.7 Rev. 4.4	Barium	8.8		ug/L	P402516	
		Calcium	4.07		mg/L	P402516	
		Iron	30	U	ug/L	P402516	
		Magnesium	1.55		mg/L	P402516	
		Manganese	3.1	I	ug/L	P402516	
		Potassium	1.1	I	mg/L	P402516	
		Sodium	8.9		mg/L	P402516	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P402516	
		Aluminum	25		ug/L	P402516	
		Antimony	0.052	I	ug/L	P402516	
		Arsenic	2.38		ug/L	P402516	
		Beryllium	0.010	U	ug/L	P402516	
		Boron**	29.0		ug/L	P402516	
		Cadmium	0.020	U	ug/L	P402516	
		Chromium	0.40	U	ug/L	P402516	
		Copper	0.40	U	ug/L	P402516	
		Lead	0.20	U	ug/L	P402516	
		Nickel	0.50	U	ug/L	P402516	
		Selenium	0.20	U	ug/L	P402516	
		Silver	0.010	U	ug/L	P402516	
		Thallium	0.10	U	ug/L	P402516	
	SM 2340B	Hardness	16.5		mg/L	P402516	

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: Lake Broward South

Collection Date/Time: 08/10/2021 11:15

Field ID: G2NE1218

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268522	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P402345	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P402551	
		Sulfate	8.7		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	19		PCU	P402348	
	SM 2320 B-2011	Total Alkalinity	4.2		mg CaCO3/L	P402593	
	SM 2540 C-2011	TDS	44		mg/L	P402859	
	SM 2540 D-2011	TSS	2	U	mg/L	P402750	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P402596	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P402460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P402966	MS
2268524	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P402440	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P402464	MS
	SM 5310 B-2011	Organic Carbon	6.5		mg C/L	P402919	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P402313	
	EPA 8321B	2,4-D	0.49		ug/L	P402303	
2268533		Acesulfame K	0.10	U	ug/L	P402297	
		2,4,5-T	0.0040	U	ug/L	P402303	
		AMPA	0.10	U	ug/L	P402297	
		Acetaminophen	0.0080	U	ug/L	P402303	
		Acetamiprid	0.0020	U	ug/L	P402303	
		Endothall	0.25	U	ug/L	P402297	
		Glufosinate	0.10	U	ug/L	P402297	
		Glyphosate	0.10	U	ug/L	P402297	
		Afidopyrophen	0.0020	U	ug/L	P402303	
		Bentazon	8.0E-04	U	ug/L	P402303	
		Sucralose	0.30		ug/L	P402297	
		Benzovindiflupyr	0.0020	U	ug/L	P402303	
		Carbamazepine	8.0E-04	U	ug/L	P402303	
		Clothianidin	0.0020	U	ug/L	P402303	
		Dinotefuran	0.0026	I	ug/L	P402303	
		Diuron	0.0020	U	ug/L	P402303	
		Fenuron	0.016	U	ug/L	P402303	
		Fluridone	0.0091		ug/L	P402303	
		Imazapyr	0.33		ug/L	P402303	
		Hydrocodone	0.0020	U	ug/L	P402303	
		Ibuprofen	0.020	U	ug/L	P402303	
		Imidacloprid	0.0020	U	ug/L	P402303	
		Linuron	0.0040	U	ug/L	P402303	
		Mandestrobin	0.0020	U	ug/L	P402303	
		MCP	0.0020	U	ug/L	P402303	
		Naproxen	0.0080	U	ug/L	P402303	
		Primidone	0.0040	U	ug/L	P402303	
		Pyraclostrobin	0.0020	U	ug/L	P402303	

Field ID: G2NE1218

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268533	EPA 8321B	Thiamethoxam	0.0020	U	ug/L	P402303	
		Tolfenpyrad	0.0020	U	ug/L	P402303	
		Triclopyr	0.0040	U	ug/L	P402303	
2268535	EPA 200.7 Rev. 4.4	Barium	3.1	I	ug/L	P402557	
		Calcium	4.63		mg/L	P402557	
		Iron	30	U	ug/L	P402557	
		Magnesium	1.48		mg/L	P402557	
		Manganese	4.4		ug/L	P402557	
		Potassium	0.92	I	mg/L	P402557	
		Sodium	8.3		mg/L	P402557	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P402557	
		Aluminum	33		ug/L	P402557	
		Antimony	0.052	I	ug/L	P402557	
		Arsenic	2.67		ug/L	P402557	
		Beryllium	0.010	U	ug/L	P402557	
		Boron**	29.4		ug/L	P402557	
		Cadmium	0.020	U	ug/L	P402557	
		Chromium	0.40	U	ug/L	P402557	
		Copper	0.78	I	ug/L	P402557	
		Lead	0.20	U	ug/L	P402557	
		Nickel	0.50	U	ug/L	P402557	
		Selenium	0.20	U	ug/L	P402557	
		Silver	0.010	U	ug/L	P402557	
		Thallium	0.10	U	ug/L	P402557	
	SM 2340B	Hardness	17.7		mg/L	P402557	

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: Silver Lake Center

Collection Date/Time: 08/10/2021 12:00

Field ID: G2NE1132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2268518	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P402345	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P402551	
		Sulfate	3.6		mg SO4/L	P402553	
	SM 2120 B-2011	Color (true)	360		PCU	P402348	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P402593	
	SM 2540 C-2011	TDS	87		mg/L	P402859	
	SM 2540 D-2011	TSS	2	I	mg/L	P402750	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P402596	
2268519	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P402460	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P402966	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.051		mg N/L	P402440	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P402464	MS
	SM 5310 B-2011	Organic Carbon	29		mg C/L	P402919	
2268520	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P402313	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P402345

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P402516

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 200.7 Rev. 4.4
Batch ID: P402557

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: P402516

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 200.8 Rev. 5.4
Batch ID: P402557

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402557

Component	Result	Code	Units
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: P402551

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402460

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402966

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402440

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402464

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402313

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402313

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

Reference Method: EPA 8321B
Batch ID: P402297

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: P402303

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P402348

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P402593

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

Reference Method: SM 2540 C-2011
Batch ID: P402859

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P402750

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P402596

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402919

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: P402516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	110		P	85 - 115
Calcium	107		P	85 - 115
Iron	112		P	85 - 115
Magnesium	111		P	85 - 115
Manganese	105		P	85 - 115
Potassium	107		P	85 - 115
Sodium	104		P	85 - 115
Zinc	106		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P402557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	108		P	85 - 115
Calcium	103		P	85 - 115
Iron	108		P	85 - 115
Magnesium	108		P	85 - 115
Manganese	103		P	85 - 115
Potassium	104		P	85 - 115
Sodium	102		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	104		P	85 - 115
Beryllium	95.9		P	85 - 115
Boron	103		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	102		P	85 - 115
Copper	105		P	85 - 115
Lead	106		P	85 - 115
Nickel	105		P	85 - 115
Selenium	105		P	85 - 115
Silver	111		P	85 - 115
Thallium	106		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	98.3		P	85 - 115
Beryllium	94.3		P	85 - 115
Boron	102		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	96.1		P	85 - 115
Copper	95.2		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P402557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Lead	102		P	85 - 115
Nickel	98.4		P	85 - 115
Selenium	96.8		P	85 - 115
Silver	104		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402551

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402460

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402966

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402440

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402464

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402313

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

Reference Method: EPA 8321B
Batch ID: P402297

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

Reference Method: EPA 8321B
Batch ID: P402297

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	106		P	40 - 150
AMPA	88.6		P	40 - 150
Endothall	87.2		P	40 - 150
Glufosinate	92.7		P	40 - 150
Glyphosate	98.0		P	40 - 150
Sucralose	99.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P402303

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	135		P	40 - 150
2,4,5-T	111		P	40 - 150
Acetaminophen	100		P	30 - 150
Acetamiprid	93.7		P	40 - 150
Afidopyropen	75.0		P	40 - 150
Bentazon	113		P	30 - 150
Benzovindiflupyr	94.7		P	40 - 150
Carbamazepine	103		P	40 - 150
Clothianidin	107		P	40 - 150
Dinotefuran	104		P	40 - 150
Diuron	94.0		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	95.3		P	40 - 150
Hydrocodone	98.6		P	40 - 150
Ibuprofen	84.8		P	40 - 150
Imazapyr	108		P	40 - 150
Imidacloprid	100		P	40 - 150
Linuron	83.4		P	40 - 150
Mandestrobin	100		P	40 - 150
MCPP	117		P	40 - 150
Naproxen	89.9		P	40 - 150
Primidone	103		P	40 - 150
Pyraclostrobin	92.6		P	40 - 150
Thiamethoxam	105		P	40 - 150
Tolfenpyrad	60.2		P	30 - 150
Triclopyr	114		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P402348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P402593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P402596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402919

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P402516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267978	Barium	108	112	P/P	80 - 120
2267978	Calcium	106		P	80 - 120
2267978	Iron	108	118	P/P	80 - 120
2267978	Magnesium	108	115	P/P	80 - 120
2267978	Manganese	103	109	P/P	80 - 120
2267978	Potassium	104	109	P/P	80 - 120
2267978	Sodium	103		P	80 - 120
2267978	Zinc	106	110	P/P	80 - 120
2268448	Barium	108		P	80 - 120
2268448	Calcium	108		P	80 - 120
2268448	Iron	110		P	80 - 120
2268448	Magnesium	109		P	80 - 120
2268448	Manganese	104		P	80 - 120
2268448	Potassium	111		P	80 - 120
2268448	Sodium	106		P	80 - 120
2268448	Zinc	103		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P402557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268535	Barium	105	107	P/P	80 - 120
2268535	Calcium	101		P	80 - 120
2268535	Iron	107	107	P/P	80 - 120
2268535	Magnesium	106	107	P/P	80 - 120
2268535	Manganese	102	103	P/P	80 - 120
2268535	Potassium	103	104	P/P	80 - 120
2268535	Sodium	99.9		P	80 - 120
2268535	Zinc	105	106	P/P	80 - 120
2269248	Barium	105		P	80 - 120
2269248	Calcium	101		P	80 - 120
2269248	Iron	108		P	80 - 120
2269248	Magnesium	101		P	80 - 120
2269248	Manganese	101		P	80 - 120
2269248	Potassium	101		P	80 - 120
2269248	Sodium	103		P	80 - 120
2269248	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267978	Aluminum	98.2	102	P/P	80 - 120
2267978	Antimony	97.2	99.4	P/P	80 - 120
2267978	Arsenic	98.0	100	P/P	80 - 120
2267978	Beryllium	98.4	100	P/P	80 - 120
2267978	Boron	99.9	104	P/P	80 - 120
2267978	Cadmium	96.5	100	P/P	80 - 120
2267978	Chromium	97.0	98.3	P/P	80 - 120
2267978	Copper	95.8	99.4	P/P	80 - 120
2267978	Lead	103	106	P/P	80 - 120
2267978	Nickel	97.5	98.8	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267978	Selenium	98.3	99.8	P/P	80 - 120
2267978	Silver	107	108	P/P	80 - 120
2267978	Thallium	104	106	P/P	80 - 120
2268448	Aluminum	99.8		P	80 - 120
2268448	Antimony	98.5		P	80 - 120
2268448	Arsenic	99.8		P	80 - 120
2268448	Beryllium	96.7		P	80 - 120
2268448	Boron	98.7		P	80 - 120
2268448	Cadmium	99.5		P	80 - 120
2268448	Chromium	99.5		P	80 - 120
2268448	Copper	101		P	80 - 120
2268448	Lead	105		P	80 - 120
2268448	Nickel	101		P	80 - 120
2268448	Selenium	99.8		P	80 - 120
2268448	Silver	108		P	80 - 120
2268448	Thallium	106		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268535	Aluminum	101	101	P/P	80 - 120
2268535	Antimony	104	105	P/P	80 - 120
2268535	Arsenic	98.5	98.3	P/P	80 - 120
2268535	Beryllium	95.9	98.5	P/P	80 - 120
2268535	Boron	102	103	P/P	80 - 120
2268535	Cadmium	100	103	P/P	80 - 120
2268535	Chromium	103	102	P/P	80 - 120
2268535	Copper	95.5	96.0	P/P	80 - 120
2268535	Lead	102	103	P/P	80 - 120
2268535	Nickel	96.2	95.9	P/P	80 - 120
2268535	Selenium	97.9	99.2	P/P	80 - 120
2268535	Silver	101	102	P/P	80 - 120
2268535	Thallium	105	106	P/P	80 - 120
2269248	Aluminum	98.1		P	80 - 120
2269248	Antimony	103		P	80 - 120
2269248	Arsenic	99.3		P	80 - 120
2269248	Beryllium	96.5		P	80 - 120
2269248	Boron	104		P	80 - 120
2269248	Cadmium	102		P	80 - 120
2269248	Chromium	97.5		P	80 - 120
2269248	Copper	94.9		P	80 - 120
2269248	Lead	104		P	80 - 120
2269248	Nickel	97.3		P	80 - 120
2269248	Selenium	97.3		P	80 - 120
2269248	Silver	102		P	80 - 120
2269248	Thallium	107		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P402551

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268465	Chloride	101		P	90 - 110
2268944	Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402553

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268465	Sulfate	101		P	90 - 110
2268944	Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268523	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268511	Kjeldahl Nitrogen	112	102	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268495	NO2NO3-N	98.8	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268624	Total-P	113	106	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268525	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P402297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268337	Acesulfame K	123	133	P/P	40 - 150
2268337	AMPA	76.0	77.6	P/P	40 - 150
2268337	Endothall	105	106	P/P	40 - 150
2268337	Glufosinate	80.0	77.7	P/P	40 - 150
2268337	Glyphosate	82.0	77.0	P/P	40 - 150
2268337	Sucralose	102	102	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P402303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268133	2,4-D	114	104	P/P	40 - 150
2268133	2,4,5-T	99.4	107	P/P	40 - 150
2268133	Acetaminophen	88.2	82.1	P/P	30 - 150
2268133	Acetamiprid	81.9	68.5	P/P	40 - 150
2268133	Afidopyropen	63.4	55.2	P/P	40 - 150
2268133	Bentazon	91.2	94.7	P/P	30 - 150
2268133	Benzovindiflupyr	86.6	87.0	P/P	40 - 150
2268133	Carbamazepine	89.0	91.5	P/P	40 - 150
2268133	Clothianidin	98.6	93.2	P/P	40 - 150
2268133	Dinotefuran	94.9	91.2	P/P	40 - 150
2268133	Diuron	81.0	84.9	P/P	40 - 150
2268133	Fenuron	92.9	86.6	P/P	40 - 150
2268133	Fluridone	84.9	91.7	P/P	40 - 150
2268133	Hydrocodone	86.0	89.8	P/P	40 - 150
2268133	Ibuprofen	77.5	82.1	P/P	40 - 150
2268133	Imazapyr	104	99.5	P/P	40 - 150
2268133	Imidacloprid	99.4	97.8	P/P	40 - 150
2268133	Linuron	75.9	80.5	P/P	40 - 150
2268133	Mandestrobin	87.2	82.5	P/P	40 - 150
2268133	MCCP	110	117	P/P	40 - 150
2268133	Naproxen	84.1	85.6	P/P	40 - 150
2268133	Primidone	89.5	93.5	P/P	40 - 150
2268133	Pyraclostrobin	83.6	82.3	P/P	40 - 150
2268133	Thiamethoxam	99.6	95.0	P/P	40 - 150
2268133	Tolfenpyrad	54.7	57.3	P/P	30 - 150
2268133	Triclopyr	101	106	P/P	40 - 150

Reference Method: SM 4500 F-C-2011

Batch ID: P402596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268419	Fluoride	103	103	P/P	92 - 107

Reference Method: SM 5310 B-2011

Batch ID: P402919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2268467	Organic Carbon	98.6	96.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P402345

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268510	Turbidity	4.78	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P402516

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267978	Barium	4.27	Spike	P	0 - 20
2267978	Calcium	5.55	Spike	P	0 - 20
2267978	Iron	7.99	Spike	P	0 - 20
2267978	Magnesium	5.41	Spike	P	0 - 20
2267978	Manganese	5.14	Spike	P	0 - 20
2267978	Potassium	4.43	Spike	P	0 - 20
2267978	Sodium	5.49	Spike	P	0 - 20
2267978	Zinc	4.42	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P402557

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268535	Barium	1.72	Spike	P	0 - 20
2268535	Calcium	1.62	Spike	P	0 - 20
2268535	Iron	0.256	Spike	P	0 - 20
2268535	Magnesium	0.129	Spike	P	0 - 20
2268535	Manganese	1.58	Spike	P	0 - 20
2268535	Potassium	0.621	Spike	P	0 - 20
2268535	Sodium	1.48	Spike	P	0 - 20
2268535	Zinc	0.377	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402516

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267978	Aluminum	2.64	Spike	P	0 - 20
2267978	Antimony	2.29	Spike	P	0 - 20
2267978	Arsenic	2.24	Spike	P	0 - 20
2267978	Beryllium	2.11	Spike	P	0 - 20
2267978	Boron	3.22	Spike	P	0 - 20
2267978	Cadmium	3.63	Spike	P	0 - 20
2267978	Chromium	1.33	Spike	P	0 - 20
2267978	Copper	3.63	Spike	P	0 - 20
2267978	Lead	3.11	Spike	P	0 - 20
2267978	Nickel	1.32	Spike	P	0 - 20
2267978	Selenium	1.50	Spike	P	0 - 20
2267978	Silver	1.22	Spike	P	0 - 20
2267978	Thallium	1.79	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P402557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268535	Aluminum	0.231	Spike	P	0 - 20
2268535	Antimony	0.821	Spike	P	0 - 20
2268535	Arsenic	0.192	Spike	P	0 - 20
2268535	Beryllium	2.69	Spike	P	0 - 20
2268535	Boron	0.467	Spike	P	0 - 20
2268535	Cadmium	2.14	Spike	P	0 - 20
2268535	Chromium	0.259	Spike	P	0 - 20
2268535	Copper	0.432	Spike	P	0 - 20
2268535	Lead	0.443	Spike	P	0 - 20
2268535	Nickel	0.300	Spike	P	0 - 20
2268535	Selenium	1.34	Spike	P	0 - 20
2268535	Silver	1.16	Spike	P	0 - 20
2268535	Thallium	1.34	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P402551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268944	Chloride	1.97	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P402553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268944	Sulfate	1.98	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P402460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268523	Ammonia-N	0.787	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P402966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268511	Kjeldahl Nitrogen	6.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P402440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268495	NO2NO3-N	0.935	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P402464

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268624	Total-P	5.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402313

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268525	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P402297

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268337	Acesulfame K	7.71	Spike	P	0 - 30
2268337	AMPA	1.94	Spike	P	0 - 30
2268337	Endothall	1.56	Spike	P	0 - 30
2268337	Glufosinate	2.85	Spike	P	0 - 30
2268337	Glyphosate	5.95	Spike	P	0 - 30
2268337	Sucralose	0.147	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P402303

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268133	2,4-D	8.89	Spike	P	0 - 30
2268133	2,4,5-T	7.50	Spike	P	0 - 30
2268133	Acetaminophen	7.25	Spike	P	0 - 30
2268133	Acetamiprid	17.8	Spike	P	0 - 30
2268133	Afidopyropen	13.9	Spike	P	0 - 30
2268133	Bentazon	3.76	Spike	P	0 - 30
2268133	Benzovindiflupyr	0.421	Spike	P	0 - 30
2268133	Carbamazepine	2.79	Spike	P	0 - 30
2268133	Clothianidin	5.57	Spike	P	0 - 30
2268133	Dinotefuran	4.03	Spike	P	0 - 30
2268133	Diuron	4.75	Spike	P	0 - 30
2268133	Fenuron	7.02	Spike	P	0 - 30
2268133	Fluridone	7.75	Spike	P	0 - 30
2268133	Hydrocodone	4.39	Spike	P	0 - 30
2268133	Ibuprofen	5.73	Spike	P	0 - 30
2268133	Imazapyr	4.86	Spike	P	0 - 30
2268133	Imidacloprid	1.64	Spike	P	0 - 30
2268133	Linuron	5.91	Spike	P	0 - 30
2268133	Mandestrobin	5.57	Spike	P	0 - 30
2268133	MCPP	6.04	Spike	P	0 - 30
2268133	Naproxen	1.76	Spike	P	0 - 30
2268133	Primidone	4.37	Spike	P	0 - 30
2268133	Pyraclostrobin	1.48	Spike	P	0 - 30
2268133	Thiamethoxam	4.70	Spike	P	0 - 30
2268133	Tolfenpyrad	4.62	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P402303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268133	Triclopyr	4.93	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P402348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268510	Color (true)	0.841	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P402593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268419	Total Alkalinity	0.923	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P402859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268626	TDS	2.87	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P402596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268419	Fluoride	0.457	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P402919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2268467	Organic Carbon	1.46	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2268532

Field Sample ID: G2NE1219

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	110	P	30 - 160
EPA 8321B	Acetaminophen-d4	85.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.8	P	30 - 160
EPA 8321B	Diuron-d6	78.4	P	30 - 160
EPA 8321B	Endothall-d6	88.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	76.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	73.5	P	30 - 160
EPA 8321B	Primidone-d5	91.7	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	30 - 160

Lab Sample ID: 2268533

Field Sample ID: G2NE1218

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	89.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.2	P	30 - 160
EPA 8321B	Diuron-d6	82.7	P	30 - 160
EPA 8321B	Endothall-d6	77.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	77.1	P	30 - 160
EPA 8321B	Ibuprofen-d3	78.7	P	30 - 160
EPA 8321B	Primidone-d5	101	P	30 - 160
EPA 8321B	Sucralose-d6	103	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107178

Included Lab Sample IDs: 2268520, 2268525, 2268526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.8	P/P	90 - 110
O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107187

Included Lab Sample IDs: 2268518, 2268521, 2268522

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

Reference Method: SM 2120 B-2011

Run ID: A107189

Included Lab Sample IDs: 2268518, 2268521, 2268522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	101	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107236

Included Lab Sample IDs: 2268519, 2268523, 2268524

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

Reference Method: EPA 8321B

Run ID: A107239

Included Lab Sample IDs: 2268532, 2268533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	89.0	87.5	P/P	60 - 160
Glufosinate	88.1	91.9	P/P	60 - 160
Glyphosate	97.3	104	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A107242

Included Lab Sample IDs: 2268532, 2268533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	123	129	P/P	60 - 160
Endothall	98.3	83.5	P/P	60 - 160
Sucralose	108	96.9	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107243

Included Lab Sample IDs: 2268519, 2268523, 2268524

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A107269

Included Lab Sample IDs: 2268532, 2268533

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.1	97.8	P/P	50 - 150
2,4,5-T	96.9	91.6	P/P	50 - 150
Acetaminophen	97.3	90.4	P/P	60 - 160
Acetamiprid	98.5	96.1	P/P	50 - 150
Afidopyropen	92.7	85.6	P/P	50 - 150
Bentazon	109	106	P/P	50 - 160
Benzovindiflupyr	95.5	96.3	P/P	50 - 150
Carbamazepine	101	102	P/P	60 - 150
Clothianidin	101	93.3	P/P	60 - 150
Dinotefuran	98.2	95.1	P/P	50 - 150
Diuron	109	106	P/P	60 - 160
Fenuron	96.8	92.3	P/P	60 - 150
Fluridone	103	92.0	P/P	60 - 160
Hydrocodone	106	103	P/P	60 - 150
Ibuprofen	91.7	91.4	P/P	50 - 160
Imazapyr	94.3	92.3	P/P	50 - 150
Imidacloprid	94.6	93.5	P/P	60 - 150
Linuron	95.4	91.4	P/P	60 - 150
Mandestrobin	95.0	94.6	P/P	50 - 150
MCPP	99.8	92.4	P/P	50 - 150
Naproxen	85.0	92.0	P/P	50 - 160
Primidone	104	99.3	P/P	60 - 150
Pyraclostrobin	96.5	97.0	P/P	60 - 150
Thiamethoxam	102	99.0	P/P	50 - 150
Tolfenpyrad	93.3	93.8	P/P	60 - 150
Triclopyr	94.6	91.5	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107288

Included Lab Sample IDs: 2268518, 2268521, 2268522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.5	P/P	90 - 110
Sulfate	100	99.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107300

Included Lab Sample IDs: 2268518, 2268521, 2268522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107300

Included Lab Sample IDs: 2268518, 2268521, 2268522

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107304

Included Lab Sample IDs: 2268534

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	103	P/P	90 - 110
Iron	104	103	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Manganese	102	103	P/P	90 - 110
Potassium	102	102	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Zinc	95.1	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107317

Included Lab Sample IDs: 2268519, 2268523, 2268524

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107337

Included Lab Sample IDs: 2268534

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.4	99.8	P/P	90 - 110
Antimony	98.5	98.5	P/P	90 - 110
Arsenic	97.9	98.4	P/P	90 - 110
Beryllium	94.9	94.9	P/P	90 - 110
Boron	98.0	99.3	P/P	90 - 110
Cadmium	98.8	98.7	P/P	90 - 110
Chromium	96.9	97.9	P/P	90 - 110
Copper	94.8	95.2	P/P	90 - 110
Lead	102	102	P/P	90 - 110
Nickel	96.7	97.4	P/P	90 - 110
Selenium	96.6	98.0	P/P	90 - 110
Silver	102	103	P/P	90 - 110
Thallium	102	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107347

Included Lab Sample IDs: 2268535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.6	99.7	P/P	90 - 110
Antimony	97.4	99.2	P/P	90 - 110
Arsenic	94.4	95.2	P/P	90 - 110
Beryllium	90.9	92.0	P/P	90 - 110
Boron	100	102	P/P	90 - 110
Cadmium	98.2	98.8	P/P	90 - 110
Chromium	91.6	97.1	P/P	90 - 110
Copper	90.2	93.1	P/P	90 - 110
Lead	97.1	96.8	P/P	90 - 110
Nickel	94.1	93.4	P/P	90 - 110
Selenium	95.2	96.9	P/P	90 - 110
Silver	95.6	95.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107347

Included Lab Sample IDs: 2268535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thallium	99.4	99.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107416

Included Lab Sample IDs: 2268534, 2268535

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	104	101	P/P	90 - 110
Barium	98.1	101	P/P	90 - 110
Calcium	101	98.8	P/P	90 - 110
Iron	101	99.9	P/P	90 - 110
Magnesium	101	99.1	P/P	90 - 110
Manganese	102	99.9	P/P	90 - 110
Potassium	101	100	P/P	90 - 110
Sodium	98.8	98.8	P/P	90 - 110
Zinc	103	98.7	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107443

Included Lab Sample IDs: 2268519, 2268523, 2268524

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107494

Included Lab Sample IDs: 2268519, 2268523, 2268524

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	97.2	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						4.78	
EPA 200.7 Rev. 4.4	Barium	110	108	112	108			4.27
	Barium	108	105	107	105			1.72
	Calcium	107	106	108				5.55
	Calcium	103	101	101				1.62
	Iron	112	108	118	110			7.99
	Iron	108	107	107	108			0.256
	Magnesium	111	108	115	109			5.41
	Magnesium	108	106	107	101			0.129
	Manganese	105	103	109	104			5.14
	Manganese	103	102	103	101			1.58
	Potassium	107	104	109	111			4.43
	Potassium	104	103	104	101			0.621
	Sodium	104	103	106				5.49
	Sodium	102	99.9	103				1.48
	Zinc	106	106	110	103			4.42
	Zinc	105	105	106	101			0.377
EPA 200.8 Rev. 5.4	Aluminum	103	98.2	102	99.8			2.64
	Aluminum	100	98.1	101	101			0.231
	Antimony	102	97.2	99.4	98.5			2.29
	Antimony	102	103	104	105			0.821
	Arsenic	104	98.0	100	99.8			2.24
	Arsenic	98.3	99.3	98.5	98.3			0.192
	Beryllium	95.9	98.4	100	96.7			2.11
	Beryllium	94.3	96.5	95.9	98.5			2.69
	Boron	103	99.9	104	98.7			3.22
	Boron	102	104	102	103			0.467
	Cadmium	102	96.5	100	99.5			3.63
	Cadmium	102	102	100	103			2.14
	Chromium	102	97.0	98.3	99.5			1.33
	Chromium	96.1	97.5	103	102			0.259
	Copper	105	95.8	99.4	101			3.63
	Copper	95.2	94.9	95.5	96.0			0.432
	Lead	106	103	106	105			3.11
	Lead	102	104	102	103			0.443
	Nickel	105	97.5	98.8	101			1.32
	Nickel	98.4	97.3	96.2	95.9			0.300
	Selenium	105	98.3	99.8	99.8			1.50
	Selenium	96.8	97.3	97.9	99.2			1.34
	Silver	111	107	108	108			1.22
	Silver	104	102	101	102			1.16
	Thallium	106	104	106	106			1.79
	Thallium	103	107	105	106			1.34
EPA 300.0 Rev. 2.1	Chloride	99.1	99.8	101			1.97	
	Sulfate	101	98.9	101			1.98	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	101	102				0.787
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	112	102				6.39
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	98.8	99.8				0.935
EPA 365.1 Rev. 2.0	Total-P	109	113	106				5.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	102	102				0.0
EPA 8321B	2,4-D	135	104	114				8.89
	2,4,5-T	111	107	99.4				7.50
	Acesulfame K	106	123	133				7.71
	Acetaminophen	100	82.1	88.2				7.25

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 8321B	Acetamiprid	93.7	68.5	81.9		17.8
	Afidopyropen	75.0	55.2	63.4		13.9
	AMPA	88.6	76.0	77.6		1.94
	Bentazon	113	94.7	91.2		3.76
	Benzovindiflupyr	94.7	87.0	86.6		0.421
	Carbamazepine	103	91.5	89.0		2.79
	Clothianidin	107	93.2	98.6		5.57
	Dinotefuran	104	91.2	94.9		4.03
	Diuron	94.0	84.9	81.0		4.75
	Endothall	87.2	105	106		1.56
	Fenuron	104	86.6	92.9		7.02
	Fluridone	95.3	91.7	84.9		7.75
	Glufosinate	92.7	80.0	77.7		2.85
	Glyphosate	98.0	82.0	77.0		5.95
	Hydrocodone	98.6	89.8	86.0		4.39
	Ibuprofen	84.8	82.1	77.5		5.73
	Imazapyr	108	99.5	104		4.86
	Imidacloprid	100	97.8	99.4		1.64
	Linuron	83.4	80.5	75.9		5.91
	Mandestrobin	100	82.5	87.2		5.57
	MCPP	117	117	110		6.04
	Naproxen	89.9	85.6	84.1		1.76
	Primidone	103	93.5	89.5		4.37
	Pyraclostrobin	92.6	82.3	83.6		1.48
	Sucralose	99.0	102	102		0.147
	Thiamethoxam	105	95.0	99.6		4.70
	Tolfenpyrad	60.2	57.3	54.7		4.62
	Triclopyr	114	106	101		4.93
SM 2120 B-2011	Color (true)	101				0.841
SM 2320 B-2011	Total Alkalinity	102				0.923
SM 2540 C-2011	TDS					2.87
SM 4500 F-C-2011	Fluoride	99.0	103	103		0.457
SM 5310 B-2011	Organic Carbon	95.5	98.6	96.6		1.46

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2268518, 2268521, 2268522
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2268534, 2268535
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2268534, 2268535
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2268518, 2268521, 2268522
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2268518, 2268521, 2268522
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2268519, 2268523, 2268524
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2268519, 2268523, 2268524
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2268519, 2268523, 2268524
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2268519, 2268523, 2268524
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2268520, 2268525, 2268526
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2268532, 2268533
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2268518, 2268521, 2268522
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2268518, 2268521, 2268522

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2268534, 2268535
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2268518, 2268521, 2268522
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2268518, 2268521, 2268522
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2268518, 2268521, 2268522
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2268519, 2268523, 2268524

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	08/11/2021			08/11/2021 15:39	Sarah A Nixon	2268518, 2268521, 2268522
EPA 200.7 Rev. 4.4	08/11/2021	08/16/2021 16:10	Elliott D. Healy	08/17/2021 22:18	Josef B Mick	2268534
	08/11/2021	08/16/2021 16:10	Elliott D. Healy	08/24/2021 04:54	Josef B Mick	2268534
	08/11/2021	08/17/2021 15:35	Elliott D. Healy	08/23/2021 18:11	Josef B Mick	2268535
EPA 200.8 Rev. 5.4	08/11/2021	08/16/2021 16:10	Elliott D. Healy	08/18/2021 23:00	McKinley C Carter	2268534
	08/11/2021	08/17/2021 15:35	Elliott D. Healy	08/19/2021 17:08	Alexander Thompson	2268535
EPA 300.0 Rev. 2.1	08/11/2021			08/17/2021 07:47	Lipi Saha	2268518
	08/11/2021			08/17/2021 07:59	Lipi Saha	2268521
	08/11/2021			08/17/2021 08:11	Lipi Saha	2268522
EPA 350.1 Rev. 2.0	08/11/2021			08/13/2021 13:34	Ping Hua	2268523
	08/11/2021			08/13/2021 13:42	Ping Hua	2268519
	08/11/2021			08/13/2021 13:43	Ping Hua	2268524
EPA 351.2 Rev. 2.0	08/11/2021	08/25/2021 13:54	Benjamin T. Nordmann	08/26/2021 12:20	Virginia P. Brown	2268519
	08/11/2021	08/25/2021 13:54	Benjamin T. Nordmann	08/26/2021 12:22	Virginia P. Brown	2268523
	08/11/2021	08/25/2021 13:54	Benjamin T. Nordmann	08/26/2021 12:23	Virginia P. Brown	2268524
EPA 353.2 Rev. 2.0	08/11/2021			08/13/2021 10:34	Beverly Y. Sanders	2268519
	08/11/2021			08/13/2021 10:35	Beverly Y. Sanders	2268523
	08/11/2021			08/13/2021 10:36	Beverly Y. Sanders	2268524
EPA 365.1 Rev. 2.0	08/11/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:37	Shengyu Ding	2268519
	08/11/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:38	Shengyu Ding	2268523
	08/11/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:39	Shengyu Ding	2268524
EPA 365.1 Rev. 2.0 dissolved	08/11/2021			08/11/2021 11:11	Patrick M. Roche	2268525
	08/11/2021			08/11/2021 11:21	Patrick M. Roche	2268520
	08/11/2021			08/11/2021 11:22	Patrick M. Roche	2268526
EPA 8321B	08/11/2021	08/13/2021 09:00	Hoor Shaik	08/14/2021 11:24	Juyoung Kim	2268532
	08/11/2021	08/13/2021 09:00	Hoor Shaik	08/14/2021 11:59	Juyoung Kim	2268533
	08/11/2021	08/13/2021 09:00	Juyoung Kim	08/13/2021 10:52	Juyoung Kim	2268532
	08/11/2021	08/13/2021 09:00	Juyoung Kim	08/13/2021 11:03	Juyoung Kim	2268533
	08/11/2021	08/13/2021 09:00	Juyoung Kim	08/13/2021 12:00	Pramila Ghimire	2268532
	08/11/2021	08/13/2021 09:00	Juyoung Kim	08/13/2021 12:13	Pramila Ghimire	2268533
SM 2120 B-2011	08/11/2021			08/11/2021 16:27	Sarah A Nixon	2268521, 2268522
	08/11/2021			08/11/2021 16:37	Sarah A Nixon	2268518
SM 2320 B-2011	08/11/2021			08/12/2021 19:16	Dale L. Simmons	2268518
	08/11/2021			08/12/2021 19:25	Dale L. Simmons	2268521
	08/11/2021			08/12/2021 19:34	Dale L. Simmons	2268522
SM 2340B	08/11/2021			08/17/2021 22:18	Josef B Mick	2268534
	08/11/2021			08/23/2021 18:11	Josef B Mick	2268535
SM 2540 C-2011	08/11/2021			08/16/2021 15:36	Yijie Li	2268518, 2268521, 2268522
SM 2540 D-2011	08/11/2021			08/16/2021 15:36	Yijie Li	2268518, 2268521, 2268522
SM 4500 F-C-2011	08/11/2021			08/12/2021 19:16	Dale L. Simmons	2268518

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	08/11/2021			08/12/2021 19:25	Dale L. Simmons	2268521
	08/11/2021			08/12/2021 19:34	Dale L. Simmons	2268522
SM 5310 B-2011	08/11/2021			08/23/2021 18:42	Madeline Gruver	2268519
	08/11/2021			08/23/2021 18:56	Madeline Gruver	2268523
	08/11/2021			08/23/2021 19:08	Madeline Gruver	2268524