

Chemical Analysis Report

SE-DIST-2022-01-13-01

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

Event Description: **Port Mayaca 2022**

Request ID: **RQ-2022-01-17-30**

Customer: **SE-DIST**

Project ID: **SMP**

Send Reports to:

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FL Dept. of Environmental Protection
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Fort Pierce, FL 34945
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Certified by: Colin Wright, Program Administrator

Date Certified: 03-FEB-2022 13:31

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Nubbin Slough 1.4 Miles Upstream of 710

Collection Date/Time: 01/12/2022 10:00

Field ID: G1SE0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299493	EPA 8321B	2,4-D	0.021		ug/L	P408493	
		Acesulfame K	0.10	U	ug/L	P408488	MS
		2,4,5-T	0.0040	U	ug/L	P408493	
		AMPA	0.10	U	ug/L	P408488	
		Acetaminophen	0.0080	U	ug/L	P408493	
		Acetamiprid	0.0020	U	ug/L	P408493	
		Endothall	0.25	U	ug/L	P408488	
		Glufosinate	0.10	U	ug/L	P408488	
		Glyphosate	0.10	U	ug/L	P408488	
		Afidopyropen	0.0020	U	ug/L	P408493	
		Bentazon	9.8E-04	I	ug/L	P408493	
		Sucralose	0.098		ug/L	P408488	
		Benzovindiflupyr	0.0020	U	ug/L	P408493	
		Carbamazepine	8.0E-04	U	ug/L	P408493	
		Clothianidin	0.0020	U	ug/L	P408493	
		Dinotefuran	0.0020	U	ug/L	P408493	
		Diuron	0.0020	U	ug/L	P408493	
		Fenuron	0.016	U	ug/L	P408493	
		Fluridone	8.0E-04	U	ug/L	P408493	
		Imazapyr	0.048		ug/L	P408493	
		Hydrocodone	0.0020	U	ug/L	P408493	
		Ibuprofen	0.020	U	ug/L	P408493	
		Imidacloprid	0.0020	U	ug/L	P408493	
		Linuron	0.0040	U	ug/L	P408493	
		Mandestrobin	0.0020	U	ug/L	P408493	
		MCPP	0.0040	U	ug/L	P408493	
		Naproxen	0.0080	UJ	ug/L	P408493	CCV
		Primidone	0.0048	I	ug/L	P408493	RPD
		Pyraclostrobin	0.0020	U	ug/L	P408493	
		Silvex	0.0040	U	ug/L	P408493	
		Thiamethoxam	0.0020	U	ug/L	P408493	MS
		Tolfenpyrad	0.0020	U	ug/L	P408493	RPD
		Triclopyr	0.0040	U	ug/L	P408493	
2299499	EPA 200.7 Rev. 4.4	Calcium	41.1		mg/L	P408754	
		Iron	330		ug/L	P408754	
		Magnesium	11.7		mg/L	P408754	
		Potassium	36.3		mg/L	P408754	
		Sodium	54.9		mg/L	P408754	
		Strontium	1.08E+03		ug/L	P408754	
		Tin	3.0	U	ug/L	P408754	
		Titanium	1.4	I	ug/L	P408754	
		Vanadium	2.0	U	ug/L	P408754	
		Zinc	5.0	U	ug/L	P408754	
	EPA 200.8 Rev. 5.4	Aluminum	662		ug/L	P408754	

Field ID: G1SE0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299499	EPA 200.8 Rev. 5.4	Antimony	0.055	I	ug/L	P408754	
		Arsenic	0.44		ug/L	P408754	
		Barium	20.5		ug/L	P408754	
		Beryllium	0.018	I	ug/L	P408754	
		Boron**	62.3		ug/L	P408754	
		Cadmium	0.020	U	ug/L	P408754	
		Chromium	0.82	I	ug/L	P408754	
		Cobalt	0.211		ug/L	P408754	
		Copper	0.42	I	ug/L	P408754	
		Lead	0.20	U	ug/L	P408754	
		Manganese	9.57		ug/L	P408754	
		Molybdenum	0.21	I	ug/L	P408754	
		Nickel	0.50	U	ug/L	P408754	
		Selenium	0.22	I	ug/L	P408754	
		Silver	0.010	U	ug/L	P408754	
		Thallium	0.10	U	ug/L	P408754	
	SM 2340B	Hardness	151		mg/L	P408754	

Ref. Method and Comment:
 EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Lettuce Creek @ 710

Collection Date/Time: 01/12/2022 10:45

Field ID: G1SE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299450	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P408513	
	EPA 300.0 Rev. 2.1	Chloride	60	A	mg Cl/L	P409265	
		Sulfate	15	A	mg SO4/L	P409268	
	SM 2120 B-2011	Color (true)**	190		PCU	P408517	
	SM 2320 B-2011	Total Alkalinity	114		mg CaCO3/L	P408610	
	SM 2540 C-2011	TDS	255		mg/L	P408977	
	SM 2540 D-2011	TSS	3	I	mg/L	P408950	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P408613	
2299451	EPA 350.1 Rev. 2.0	Ammonia-N	0.087		mg N/L	P409016	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P408854	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P408679	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P408648	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P408837	
2299452	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P408503	
2299494	EPA 8321B	2,4-D	0.0020	U	ug/L	P408493	
		Acesulfame K	0.10	U	ug/L	P408488	MS
		2,4,5-T	0.0040	U	ug/L	P408493	
		AMPA	0.10	U	ug/L	P408488	
		Acetaminophen	0.0080	U	ug/L	P408493	
		Acetamiprid	0.0020	U	ug/L	P408493	
		Endothall	0.25	U	ug/L	P408488	
		Glufosinate	0.10	U	ug/L	P408488	
		Glyphosate	0.59		ug/L	P408488	
		Afidopyropen	0.0020	U	ug/L	P408493	
		Bentazon	8.0E-04	U	ug/L	P408493	
		Sucralose	0.053		ug/L	P408488	
		Benzovindiflupyr	0.0020	U	ug/L	P408493	
		Carbamazepine	8.0E-04	U	ug/L	P408493	
		Clothianidin	0.0020	U	ug/L	P408493	
		Dinotefuran	0.0020	U	ug/L	P408493	
		Diuron	0.0020	U	ug/L	P408493	
		Fenuron	0.016	U	ug/L	P408493	
		Fluridone	8.0E-04	U	ug/L	P408493	
		Imazapyr	0.0053	I	ug/L	P408493	
		Hydrocodone	0.0020	U	ug/L	P408493	
		Ibuprofen	0.020	U	ug/L	P408493	
		Imidacloprid	0.0020	U	ug/L	P408493	
		Linuron	0.0040	U	ug/L	P408493	
		Mandestrobin	0.0020	U	ug/L	P408493	
		MCP	0.0040	U	ug/L	P408493	
		Naproxen	0.0080	UJ	ug/L	P408493	CCV
		Primidone	0.0040	U	ug/L	P408493	RPD
		Pyraclostrobin	0.0020	U	ug/L	P408493	

Field ID: G1SE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299494	EPA 8321B	Silvex	0.0040	U	ug/L	P408493	
		Thiamethoxam	0.0020	U	ug/L	P408493	MS
		Tolfenpyrad	0.0020	U	ug/L	P408493	RPD
		Triclopyr	0.0040	U	ug/L	P408493	
2299500	EPA 200.7 Rev. 4.4	Calcium	46.7		mg/L	P408710	
		Iron	1.08E+03		ug/L	P408710	
		Magnesium	7.40		mg/L	P408710	
		Potassium	3.3		mg/L	P408710	
		Sodium	37.3		mg/L	P408710	
		Strontium	556		ug/L	P408710	
		Tin	3.0	U	ug/L	P408710	
		Titanium	2.2	I	ug/L	P408710	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P408710	
		Zinc	5.0	U	ug/L	P408710	
		Aluminum	174		ug/L	P408710	
		Antimony	0.050	U	ug/L	P408710	
		Arsenic	0.84		ug/L	P408710	
		Barium	27.1		ug/L	P408710	
		Beryllium	0.021	I	ug/L	P408710	
		Boron**	49.3		ug/L	P408710	
		Cadmium	0.020	U	ug/L	P408710	
		Chromium	1.2	I	ug/L	P408710	
		Cobalt	0.188		ug/L	P408710	
		Copper	0.40	U	ug/L	P408710	
		Lead	0.20	U	ug/L	P408710	
		Manganese	23.3		ug/L	P408710	
		Molybdenum	0.24	I	ug/L	P408710	
		Nickel	0.50	U	ug/L	P408710	
		Selenium	0.27	I	ug/L	P408710	
		Silver	0.010	U	ug/L	P408710	
		Thallium	0.10	U	ug/L	P408710	
	SM 2340B	Hardness	147		mg/L	P408710	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable because of high analyte concentration in the QC sample.

Sample Location: Nubbin Slough Upstream of STA

Collection Date/Time: 01/12/2022 10:20

Field ID: G1SE0004

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299498	EPA 200.7 Rev. 4.4	Calcium	22.6		mg/L	P408710	
		Iron	1.19E+03		ug/L	P408710	
		Magnesium	4.73		mg/L	P408710	
		Potassium	12.5		mg/L	P408710	
		Sodium	23.1		mg/L	P408710	
		Strontium	176		ug/L	P408710	
		Tin	3.0	U	ug/L	P408710	
		Titanium	2.5	I	ug/L	P408710	
		Vanadium	2.7	I	ug/L	P408710	
		Zinc	5.0	U	ug/L	P408710	
	EPA 200.8 Rev. 5.4	Aluminum	329		ug/L	P408710	
		Antimony	0.050	U	ug/L	P408710	
		Arsenic	1.16		ug/L	P408710	
		Barium	18.5		ug/L	P408710	
		Beryllium	0.025	I	ug/L	P408710	
		Boron**	33.5		ug/L	P408710	
		Cadmium	0.020	U	ug/L	P408710	
		Chromium	1.7		ug/L	P408710	
		Cobalt	0.237		ug/L	P408710	
		Copper	0.40	U	ug/L	P408710	
		Lead	0.20	U	ug/L	P408710	
		Manganese	12.9		ug/L	P408710	
		Molybdenum	0.41	I	ug/L	P408710	
		Nickel	0.53	I	ug/L	P408710	
		Selenium	0.24	I	ug/L	P408710	
		Silver	0.010	U	ug/L	P408710	
		Thallium	0.10	U	ug/L	P408710	
	SM 2340B	Hardness	75.9		mg/L	P408710	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable because of high analyte concentration in the QC sample.

Sample Location: L-65 Upstream of S-153

Collection Date/Time: 01/12/2022 11:30

Field ID: G1SE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299444	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P408513	
	EPA 300.0 Rev. 2.1	Chloride	150		mg Cl/L	P409117	
		Sulfate	31		mg SO4/L	P409120	
		Color (true)**	120		PCU	P408517	
	SM 2320 B-2011	Total Alkalinity	180		mg CaCO3/L	P408610	
	SM 2540 C-2011	TDS	472		mg/L	P408977	
	SM 2540 D-2011	TSS	2	U	mg/L	P408950	
	SM 4500 F-C-2011	Fluoride	0.23		mg F/L	P408613	
2299446	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P409016	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P408849	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P408679	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P408648	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P408837	
2299448	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P408502	
2299496	EPA 200.7 Rev. 4.4	Calcium	75.7		mg/L	P408710	
		Iron	190		ug/L	P408710	
		Magnesium	13.1		mg/L	P408710	
		Potassium	5.9		mg/L	P408710	
		Sodium	80.2		mg/L	P408710	
		Strontium	1.86E+03		ug/L	P408710	
		Tin	3.0	U	ug/L	P408710	
	EPA 200.8 Rev. 5.4	Titanium	1.5	I	ug/L	P408710	
		Vanadium	2.0	U	ug/L	P408710	
		Zinc	5.0	U	ug/L	P408710	
		Aluminum	41		ug/L	P408710	
		Antimony	0.050	U	ug/L	P408710	
		Arsenic	1.04		ug/L	P408710	
		Barium	26.3		ug/L	P408710	
		Beryllium	0.011	I	ug/L	P408710	
		Boron**	78.5		ug/L	P408710	
		Cadmium	0.020	U	ug/L	P408710	
		Chromium	0.59	I	ug/L	P408710	
		Cobalt	0.111		ug/L	P408710	
		Copper	0.40	U	ug/L	P408710	
		Lead	0.20	U	ug/L	P408710	
		Manganese	5.71		ug/L	P408710	
		Molybdenum	0.45	I	ug/L	P408710	
		Nickel	0.50	U	ug/L	P408710	
		Selenium	0.23	I	ug/L	P408710	
		Silver	0.010	U	ug/L	P408710	
		Thallium	0.10	U	ug/L	P408710	
	SM 2340B	Hardness	243		mg/L	P408710	

Field ID: G1SE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable because of high analyte concentration in the QC sample.

Sample Location: S-153 Unnamed Creek @ 710

Collection Date/Time: 01/12/2022 12:10

Field ID: G4SE0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299445	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P408513	
	EPA 300.0 Rev. 2.1	Chloride	450		mg Cl/L	P409117	
		Sulfate	160		mg SO4/L	P409120	
		Color (true)**	65		PCU	P408517	
	SM 2120 B-2011	Total Alkalinity	143		mg CaCO3/L	P408610	
	SM 2540 C-2011	TDS	1.02E+03		mg/L	P408977	
	SM 2540 D-2011	TSS	4	I	mg/L	P408950	
	SM 4500 F-C-2011	Fluoride	0.67		mg F/L	P408613	
2299447	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P409016	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P408849	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P408679	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P408648	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P408837	
2299449	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P408502	
2299497	EPA 200.7 Rev. 4.4	Calcium	69.1		mg/L	P408710	
		Iron	120	I	ug/L	P408710	
		Magnesium	46.8		mg/L	P408710	
		Potassium	11.8		mg/L	P408710	
		Sodium	247		mg/L	P408710	
		Strontium	1.11E+04		ug/L	P408710	
		Tin	3.0	U	ug/L	P408710	
		Titanium	1.8	I	ug/L	P408710	
	EPA 200.8 Rev. 5.4	Vanadium	2.0	U	ug/L	P408710	
		Zinc	5.0	U	ug/L	P408710	
		Aluminum	96		ug/L	P408710	
		Antimony	0.050	U	ug/L	P408710	
		Arsenic	0.38		ug/L	P408710	
		Barium	28.6		ug/L	P408710	
		Beryllium	0.010	U	ug/L	P408710	
		Boron**	222		ug/L	P408710	
		Cadmium	0.020	U	ug/L	P408710	
		Chromium	0.40	U	ug/L	P408710	
		Cobalt	0.077	I	ug/L	P408710	
		Copper	0.40	U	ug/L	P408710	
		Lead	0.20	U	ug/L	P408710	
		Manganese	6.80		ug/L	P408710	
		Molybdenum	0.15	U	ug/L	P408710	
		Nickel	0.50	U	ug/L	P408710	
		Selenium	0.20	U	ug/L	P408710	
		Silver	0.010	U	ug/L	P408710	
		Thallium	0.10	U	ug/L	P408710	
	SM 2340B	Hardness	365		mg/L	P408710	

Field ID: G4SE0137

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for manganese are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mosquito Creek @ 70

Collection Date/Time: 01/12/2022 09:25

Field ID: G1SE0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2299495	EPA 8321B	2,4-D	0.0053	I	ug/L	P408493	
		Acesulfame K	0.10	U	ug/L	P408488	MS
		2,4,5-T	0.0040	U	ug/L	P408493	
		AMPA	0.10	U	ug/L	P408488	
		Acetaminophen	0.0080	U	ug/L	P408493	
		Acetamiprid	0.0020	U	ug/L	P408493	
		Endothall	0.25	U	ug/L	P408488	
		Glufosinate	0.10	U	ug/L	P408488	
		Glyphosate	0.10	U	ug/L	P408488	
		Afidopyropen	0.0020	U	ug/L	P408493	
		Bentazon	0.0035		ug/L	P408493	
		Sucralose	0.24		ug/L	P408488	
		Benzovindiflupyr	0.0020	U	ug/L	P408493	
		Carbamazepine	8.0E-04	U	ug/L	P408493	
		Clothianidin	0.0020	U	ug/L	P408493	
		Dinotefuran	0.0026	I	ug/L	P408493	
		Diuron	0.0020	U	ug/L	P408493	
		Fenuron	0.016	U	ug/L	P408493	
		Fluridone	8.0E-04	U	ug/L	P408493	
		Imazapyr	0.069		ug/L	P408493	
		Hydrocodone	0.0020	U	ug/L	P408493	
		Ibuprofen	0.020	U	ug/L	P408493	
		Imidacloprid	0.0021	I	ug/L	P408493	
		Linuron	0.0040	U	ug/L	P408493	
		Mandestrobin	0.0020	U	ug/L	P408493	
		MCPP	0.0040	U	ug/L	P408493	
		Naproxen	0.0080	UJ	ug/L	P408493	CCV
		Primidone	0.0040	U	ug/L	P408493	RPD
		Pyraclostrobin	0.0020	U	ug/L	P408493	
		Silvex	0.0040	U	ug/L	P408493	
		Thiamethoxam	0.0020	U	ug/L	P408493	MS
		Tolfenpyrad	0.0020	U	ug/L	P408493	RPD
		Triclopyr	0.0040	U	ug/L	P408493	

Ref. Method and Comment:

EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P408513

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408710

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408754

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Titanium	0.75	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408710

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	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
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P408710

Component	Result	Code	Units
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P408754

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	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
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409117

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409120

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409265

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409268

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P409016

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P409016

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408849

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408854

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408679

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408648

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408502

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408503

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

Reference Method: EPA 8321B
Batch ID: P408488

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P408493

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	0.0040	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011

Batch ID: P408517

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P408610

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

Reference Method: SM 2540 C-2011

Batch ID: P408977

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P408950

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P408613

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P408837

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: P408710

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	106		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	103		P	85 - 115
Sodium	102		P	85 - 115
Strontium	104		P	85 - 115
Tin	108		P	85 - 115
Titanium	107		P	85 - 115
Vanadium	106		P	85 - 115
Zinc	107		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	109		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	104		P	85 - 115
Sodium	101		P	85 - 115
Strontium	104		P	85 - 115
Tin	110		P	85 - 115
Titanium	104		P	85 - 115
Vanadium	105		P	85 - 115
Zinc	110		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408710

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	99.2		P	85 - 115
Arsenic	102		P	85 - 115
Barium	105		P	85 - 115
Beryllium	102		P	85 - 115
Boron	97.6		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	102		P	85 - 115
Cobalt	99.3		P	85 - 115
Copper	102		P	85 - 115
Lead	95.5		P	85 - 115
Manganese	100		P	85 - 115
Molybdenum	102		P	85 - 115
Nickel	103		P	85 - 115
Selenium	99.7		P	85 - 115
Silver	102		P	85 - 115
Thallium	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408754

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P408754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.5		P	85 - 115
Antimony	96.4		P	85 - 115
Arsenic	97.0		P	85 - 115
Barium	101		P	85 - 115
Beryllium	96.4		P	85 - 115
Boron	94.0		P	85 - 115
Cadmium	95.2		P	85 - 115
Chromium	97.2		P	85 - 115
Cobalt	96.8		P	85 - 115
Copper	97.8		P	85 - 115
Lead	92.3		P	85 - 115
Manganese	97.5		P	85 - 115
Molybdenum	98.1		P	85 - 115
Nickel	99.8		P	85 - 115
Selenium	98.2		P	85 - 115
Silver	97.2		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409117

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409120

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409265

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409268

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P409016

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408849

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408849

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408854

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408679

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408648

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408502

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408503

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.9		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P408488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	109		P	40 - 150
AMPA	99.1		P	40 - 160
Endothall	61.3		P	40 - 150
Glufosinate	109		P	40 - 160
Glyphosate	94.1		P	40 - 160
Sucralose	116		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P408493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	102		P	40 - 150
2,4,5-T	85.1		P	40 - 150
Acetaminophen	88.3		P	30 - 150
Acetamiprid	91.5		P	40 - 150
Afidopyropen	81.1		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P408493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bentazon	77.6		P	30 - 150
Benzovindiflupyr	67.7		P	40 - 150
Carbamazepine	90.6		P	40 - 150
Clothianidin	107		P	40 - 150
Dinotefuran	93.2		P	40 - 150
Diuron	88.8		P	40 - 150
Fenuron	102		P	40 - 150
Fluridone	91.4		P	40 - 150
Hydrocodone	88.2		P	40 - 150
Ibuprofen	76.7		P	40 - 150
Imazapyr	72.3		P	40 - 150
Imidacloprid	91.7		P	40 - 150
Linuron	85.4		P	40 - 150
Mandestrobin	89.2		P	40 - 150
MCPP	102		P	40 - 150
Naproxen	69.6		P	40 - 150
Primidone	77.0		P	40 - 150
Pyraclostrobin	77.3		P	40 - 150
Silvex	71.1		P	40 - 150
Thiamethoxam	94.2		P	40 - 150
Tolfenpyrad	38.5		P	30 - 150
Triclopyr	82.3		P	40 - 150

Reference Method: SM 2120 B-2011

Batch ID: P408517

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

Reference Method: SM 2320 B-2011

Batch ID: P408610

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

Reference Method: SM 4500 F-C-2011

Batch ID: P408613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	93 - 104

Reference Method: SM 5310 B-2011

Batch ID: P408837

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299623	Calcium	99.2		P	80 - 120
2299623	Iron	105	107	P/P	80 - 120
2299623	Magnesium	103		P	80 - 120
2299623	Potassium	103	105	P/P	80 - 120
2299623	Sodium	103		P	80 - 120
2299623	Strontium	104	103	P/P	80 - 120
2299623	Tin	105	105	P/P	80 - 120
2299623	Titanium	105	106	P/P	80 - 120
2299623	Vanadium	107	107	P/P	80 - 120
2299623	Zinc	83.8	84.3	P/P	80 - 120
2299727	Calcium	112		P	80 - 120
2299727	Iron	110		P	80 - 120
2299727	Magnesium	110		P	80 - 120
2299727	Potassium	110		P	80 - 120
2299727	Sodium	107		P	80 - 120
2299727	Strontium	106		P	80 - 120
2299727	Tin	108		P	80 - 120
2299727	Titanium	108		P	80 - 120
2299727	Vanadium	107		P	80 - 120
2299727	Zinc	106		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299809	Calcium	105		P	80 - 120
2299809	Iron	107		P	80 - 120
2299809	Magnesium	104		P	80 - 120
2299809	Potassium	102		P	80 - 120
2299809	Sodium	101		P	80 - 120
2299809	Strontium	102		P	80 - 120
2299809	Tin	110		P	80 - 120
2299809	Titanium	105		P	80 - 120
2299809	Vanadium	106		P	80 - 120
2299809	Zinc	106		P	80 - 120
2300558	Calcium	104		P	80 - 120
2300558	Iron	108	109	P/P	80 - 120
2300558	Magnesium	100		P	80 - 120
2300558	Potassium	101	104	P/P	80 - 120
2300558	Sodium	99.9		P	80 - 120
2300558	Strontium	102	102	P/P	80 - 120
2300558	Tin	109	107	P/P	80 - 120
2300558	Titanium	105	104	P/P	80 - 120
2300558	Vanadium	107	106	P/P	80 - 120
2300558	Zinc	106	104	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299623	Aluminum	100	98.9	P/P	80 - 120
2299623	Antimony	104	103	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408710

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299623	Arsenic	104	102	P/P	80 - 120
2299623	Barium	106	106	P/P	80 - 120
2299623	Beryllium	104	102	P/P	80 - 120
2299623	Boron	98.6	97.2	P/P	80 - 120
2299623	Cadmium	105	102	P/P	80 - 120
2299623	Chromium	107	106	P/P	80 - 120
2299623	Cobalt	100	98.7	P/P	80 - 120
2299623	Copper	99.0	98.3	P/P	80 - 120
2299623	Lead	99.1	96.9	P/P	80 - 120
2299623	Molybdenum	106	105	P/P	80 - 120
2299623	Nickel	101	99.6	P/P	80 - 120
2299623	Selenium	102	101	P/P	80 - 120
2299623	Silver	100	100	P/P	80 - 120
2299623	Thallium	109	108	P/P	80 - 120
2299727	Aluminum	102		P	80 - 120
2299727	Antimony	99.9		P	80 - 120
2299727	Arsenic	102		P	80 - 120
2299727	Barium	106		P	80 - 120
2299727	Beryllium	103		P	80 - 120
2299727	Boron	98.6		P	80 - 120
2299727	Cadmium	102		P	80 - 120
2299727	Chromium	104		P	80 - 120
2299727	Cobalt	98.1		P	80 - 120
2299727	Copper	102		P	80 - 120
2299727	Lead	97.2		P	80 - 120
2299727	Molybdenum	101		P	80 - 120
2299727	Nickel	102		P	80 - 120
2299727	Selenium	99.0		P	80 - 120
2299727	Silver	100		P	80 - 120
2299727	Thallium	107		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299809	Aluminum	96.2		P	80 - 120
2299809	Antimony	99.0		P	75 - 125
2299809	Arsenic	97.8		P	75 - 125
2299809	Barium	102		P	75 - 125
2299809	Beryllium	101		P	80 - 120
2299809	Boron	92.9		P	80 - 120
2299809	Cadmium	97.7		P	75 - 125
2299809	Chromium	98.6		P	80 - 120
2299809	Cobalt	94.3		P	80 - 120
2299809	Copper	94.7		P	75 - 125
2299809	Lead	98.5		P	75 - 125
2299809	Manganese	97.7		P	80 - 120
2299809	Molybdenum	99.4		P	75 - 125
2299809	Nickel	97.0		P	75 - 125
2299809	Selenium	96.0		P	75 - 125
2299809	Silver	94.6		P	75 - 125
2299809	Thallium	104		P	75 - 125

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2300558	Aluminum	96.3	96.2	P/P	80 - 120
2300558	Antimony	99.8	100	P/P	80 - 120
2300558	Arsenic	99.4	100	P/P	80 - 120
2300558	Barium	103	103	P/P	80 - 120
2300558	Beryllium	99.3	101	P/P	80 - 120
2300558	Boron	91.8	92.2	P/P	80 - 120
2300558	Cadmium	97.4	97.3	P/P	80 - 120
2300558	Chromium	98.9	99.5	P/P	80 - 120
2300558	Cobalt	97.2	97.7	P/P	80 - 120
2300558	Copper	97.1	96.5	P/P	80 - 120
2300558	Lead	100	99.5	P/P	80 - 120
2300558	Manganese	98.4	98.9	P/P	80 - 120
2300558	Molybdenum	102	101	P/P	80 - 120
2300558	Nickel	99.9	99.4	P/P	80 - 120
2300558	Selenium	97.1	99.8	P/P	80 - 120
2300558	Silver	94.7	94.1	P/P	80 - 120
2300558	Thallium	105	106	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P409117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299313	Chloride	104		P	90 - 110
2299374	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P409120

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299313	Sulfate	97.9		P	90 - 110
2299374	Sulfate	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P409265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299450	Chloride	99.6		P	90 - 110
2300492	Chloride	96.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P409268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299450	Sulfate	95.3		P	90 - 110
2300492	Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P409016

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299453	Ammonia-N	99.6	99.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299446	Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299364	Kjeldahl Nitrogen	99.3	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299417	NO2NO3-N	99.2	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299446	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299334	O-Phosphate-P	96.7	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299455	O-Phosphate-P	97.5	98.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P408488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299205	Acesulfame K	36.8	34.3	F/F	40 - 150
2299205	AMPA	42.1	41.0	P/P	40 - 160
2299205	Endothall	143	139	P/P	40 - 150
2299205	Glufosinate	58.1	60.3	P/P	40 - 160
2299205	Glyphosate	73.1	76.8	P/P	40 - 160
2299205	Sucralose	129	123	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P408493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299205	2,4,5-T	84.6	87.9	P/P	40 - 150
2299205	Acetaminophen	141	137	P/P	30 - 150
2299205	Acetamiprid	95.7	87.1	P/P	40 - 150
2299205	Afidopyropen	47.1	54.6	P/P	40 - 150
2299205	Benzovindiflupyr	111	121	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P408493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299205	Carbamazepine	99.3	105	P/P	40 - 150
2299205	Clothianidin	99.8	119	P/P	40 - 150
2299205	Dinotefuran	129	134	P/P	40 - 150
2299205	Diuron	83.1	81.5	P/P	40 - 150
2299205	Fenuron	95.0	94.7	P/P	40 - 150
2299205	Hydrocodone	111	107	P/P	40 - 150
2299205	Ibuprofen	105	93.8	P/P	40 - 150
2299205	Linuron	45.8	50.1	P/P	40 - 150
2299205	Mandestrobin	105	114	P/P	40 - 150
2299205	MCPD	98.6	111	P/P	40 - 150
2299205	Naproxen	92.1	94.2	P/P	40 - 150
2299205	Primidone	148	77.8	P/P	40 - 150
2299205	Pyraclostrobin	90.6	77.9	P/P	40 - 150
2299205	Silvex	71.8	90.1	P/P	40 - 150
2299205	Thiamethoxam	158	167	F/F	40 - 150
2299205	Tolfenpyrad	33.9	63.6	P/P	30 - 150
2299205	Triclopyr	109	125	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P408613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299472	Fluoride	98.2	98.2	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P408837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299333	Organic Carbon	94.7	95.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P408513

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299403	Turbidity	1.10	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408710

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299623	Calcium	0.520	Spike	P	0 - 20
2299623	Iron	1.78	Spike	P	0 - 20
2299623	Magnesium	2.06	Spike	P	0 - 20
2299623	Potassium	1.09	Spike	P	0 - 20
2299623	Sodium	0.289	Spike	P	0 - 20
2299623	Strontium	0.802	Spike	P	0 - 20
2299623	Tin	0.379	Spike	P	0 - 20
2299623	Titanium	1.05	Spike	P	0 - 20
2299623	Vanadium	0.829	Spike	P	0 - 20
2299623	Zinc	0.514	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P408754

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2300558	Calcium	0.288	Spike	P	0 - 20
2300558	Iron	1.07	Spike	P	0 - 20
2300558	Magnesium	1.56	Spike	P	0 - 20
2300558	Potassium	1.68	Spike	P	0 - 20
2300558	Sodium	0.458	Spike	P	0 - 20
2300558	Strontium	0.337	Spike	P	0 - 20
2300558	Tin	1.68	Spike	P	0 - 20
2300558	Titanium	1.06	Spike	P	0 - 20
2300558	Vanadium	1.06	Spike	P	0 - 20
2300558	Zinc	1.44	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P408710

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299623	Aluminum	1.44	Spike	P	0 - 20
2299623	Antimony	0.367	Spike	P	0 - 20
2299623	Arsenic	1.78	Spike	P	0 - 20
2299623	Barium	0.402	Spike	P	0 - 20
2299623	Beryllium	1.67	Spike	P	0 - 20
2299623	Boron	1.02	Spike	P	0 - 20
2299623	Cadmium	2.77	Spike	P	0 - 20
2299623	Chromium	0.789	Spike	P	0 - 20
2299623	Cobalt	1.49	Spike	P	0 - 20
2299623	Copper	0.690	Spike	P	0 - 20
2299623	Lead	2.24	Spike	P	0 - 20
2299623	Manganese	0.357	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P408710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299623	Molybdenum	1.10	Spike	P	0 - 20
2299623	Nickel	1.31	Spike	P	0 - 20
2299623	Selenium	0.404	Spike	P	0 - 20
2299623	Silver	0.312	Spike	P	0 - 20
2299623	Thallium	1.21	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P408754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2300558	Aluminum	0.114	Spike	P	0 - 20
2300558	Antimony	0.226	Spike	P	0 - 20
2300558	Arsenic	0.843	Spike	P	0 - 20
2300558	Barium	0.406	Spike	P	0 - 20
2300558	Beryllium	1.51	Spike	P	0 - 20
2300558	Boron	0.334	Spike	P	0 - 20
2300558	Cadmium	0.0208	Spike	P	0 - 20
2300558	Chromium	0.584	Spike	P	0 - 20
2300558	Cobalt	0.482	Spike	P	0 - 20
2300558	Copper	0.623	Spike	P	0 - 20
2300558	Lead	0.722	Spike	P	0 - 20
2300558	Manganese	0.335	Spike	P	0 - 20
2300558	Molybdenum	0.645	Spike	P	0 - 20
2300558	Nickel	0.436	Spike	P	0 - 20
2300558	Selenium	2.71	Spike	P	0 - 20
2300558	Silver	0.624	Spike	P	0 - 20
2300558	Thallium	0.426	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299313	Chloride	0.631	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299313	Sulfate	0.571	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299450	Chloride	1.01	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P409268

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299450	Sulfate	0.876	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P409016

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299453	Ammonia-N	0.108	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P408849

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299446	Kjeldahl Nitrogen	0.937	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P408854

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299364	Kjeldahl Nitrogen	2.29	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P408679

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299417	NO2NO3-N	0.462	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P408648

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299446	Total-P	0.229	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P408502

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299334	O-Phosphate-P	0.462	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P408503

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299455	O-Phosphate-P	0.512	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P408488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299205	Acesulfame K	7.25	Spike	P	0 - 30
2299205	AMPA	2.70	Spike	P	0 - 30
2299205	Endothall	2.63	Spike	P	0 - 30
2299205	Glufosinate	3.68	Spike	P	0 - 30
2299205	Glyphosate	4.90	Spike	P	0 - 30
2299205	Sucralose	4.16	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P408493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299205	2,4-D	7.77	Spike	P	0 - 30
2299205	2,4,5-T	3.85	Spike	P	0 - 30
2299205	Acetaminophen	2.91	Spike	P	0 - 30
2299205	Acetamiprid	9.36	Spike	P	0 - 30
2299205	Afidopyropen	14.8	Spike	P	0 - 30
2299205	Bentazon	18.1	Spike	P	0 - 30
2299205	Benzovindiflupyr	9.05	Spike	P	0 - 30
2299205	Carbamazepine	5.07	Spike	P	0 - 30
2299205	Clothianidin	17.4	Spike	P	0 - 30
2299205	Dinotefuran	3.57	Spike	P	0 - 30
2299205	Diuron	2.00	Spike	P	0 - 30
2299205	Fenuron	0.416	Spike	P	0 - 30
2299205	Fluridone	0.233	Spike	P	0 - 30
2299205	Hydrocodone	3.32	Spike	P	0 - 30
2299205	Ibuprofen	11.7	Spike	P	0 - 30
2299205	Imazapyr	15.2	Spike	P	0 - 30
2299205	Imidacloprid	2.89	Spike	P	0 - 30
2299205	Linuron	9.10	Spike	P	0 - 30
2299205	Mandestrobin	8.16	Spike	P	0 - 30
2299205	MCPP	10.3	Spike	P	0 - 30
2299205	Naproxen	2.22	Spike	P	0 - 30
2299205	Primidone	62.4	Spike	F	0 - 30
2299205	Pyraclostrobin	15.1	Spike	P	0 - 30
2299205	Silvex	22.6	Spike	P	0 - 30
2299205	Thiamethoxam	5.20	Spike	P	0 - 30
2299205	Tolfenpyrad	61.0	Spike	F	0 - 30
2299205	Triclopyr	14.4	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P408517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299560	Color (true)	2.73	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P408610

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299472	Total Alkalinity	1.38	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P408977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299906	TDS	7.29	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P408613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299472	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P408837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299333	Organic Carbon	0.669	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2299493

Field Sample ID: G1SE0031

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	130	P	30 - 160
EPA 8321B	Acetaminophen-d4	124	P	30 - 160
EPA 8321B	Carbamazepine-d10	113	P	30 - 160
EPA 8321B	Diuron-d6	63.9	P	30 - 160
EPA 8321B	Endothall-d6	138	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	46.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	147	P	30 - 160
EPA 8321B	Primidone-d5	96.1	P	30 - 160
EPA 8321B	Sucralose-d6	148	P	30 - 160

Lab Sample ID: 2299494

Field Sample ID: G1SE0015

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	117	P	30 - 160
EPA 8321B	Acetaminophen-d4	105	P	30 - 160
EPA 8321B	Carbamazepine-d10	102	P	30 - 160
EPA 8321B	Diuron-d6	101	P	30 - 160
EPA 8321B	Endothall-d6	121	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	84.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	62.2	P	30 - 160
EPA 8321B	Primidone-d5	88.9	P	30 - 160
EPA 8321B	Sucralose-d6	154	P	30 - 160

Lab Sample ID: 2299495

Field Sample ID: G1SE0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	119	P	30 - 160
EPA 8321B	Acetaminophen-d4	108	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Diuron-d6	62.9	P	30 - 160
EPA 8321B	Endothall-d6	121	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	41.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	71.1	P	30 - 160
EPA 8321B	Primidone-d5	96.3	P	30 - 160
EPA 8321B	Sucralose-d6	152	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A109853

Included Lab Sample IDs: 2299448, 2299449, 2299452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	99.1	P/P	90 - 110
O-Phosphate-P	99.0	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109856

Included Lab Sample IDs: 2299444, 2299445, 2299450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A109857

Included Lab Sample IDs: 2299444, 2299445, 2299450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115
Color (true)	102	102	P/P	85 - 115

Reference Method: EPA 8321B

Run ID: A109867

Included Lab Sample IDs: 2299493, 2299494, 2299495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	95.8	71.8	P/P	60 - 160
Glufosinate	94.0	63.6	P/P	60 - 160
Glyphosate	98.1	78.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A109872

Included Lab Sample IDs: 2299493, 2299494, 2299495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	128	128	P/P	60 - 160
Endothall	116	69.8	P/P	60 - 160
Sucralose	115	116	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A109907

Included Lab Sample IDs: 2299444, 2299445, 2299450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.5	99.7	P/P	90 - 110
Total Alkalinity	99.7	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109907

Included Lab Sample IDs: 2299444, 2299445, 2299450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	P/P	90 - 110
Fluoride	100	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A109920

Included Lab Sample IDs: 2299493, 2299494, 2299495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.3	96.8	P/P	50 - 150
2,4-D	96.8	135	P/P	50 - 150
2,4,5-T	79.9	83.1	P/P	50 - 150
2,4,5-T	83.1	106	P/P	50 - 150
Acetaminophen	75.3	73.1	P/P	60 - 160
Acetaminophen	87.0	75.3	P/P	60 - 160
Acetamiprid	95.9	98.1	P/P	50 - 150
Acetamiprid	96.9	95.9	P/P	50 - 150
Afidopyropen	103	122	P/P	50 - 150
Afidopyropen	105	103	P/P	50 - 150
Bentazon	89.2	97.4	P/P	50 - 160
Bentazon	97.4	107	P/P	50 - 160
Benzovindiflupyr	105	113	P/P	50 - 150
Benzovindiflupyr	93.5	105	P/P	50 - 150
Carbamazepine	106	98.9	P/P	60 - 150
Carbamazepine	107	106	P/P	60 - 150
Clothianidin	112	119	P/P	60 - 150
Clothianidin	127	112	P/P	60 - 150
Dinotefuran	103	101	P/P	50 - 150
Dinotefuran	98.9	103	P/P	50 - 150
Diuron	135	86.7	P/P	60 - 160
Diuron	86.7	101	P/P	60 - 160
Fenuron	104	99.5	P/P	60 - 150
Fenuron	99.5	96.2	P/P	60 - 150
Fluridone	113	83.8	P/P	60 - 160
Fluridone	98.3	113	P/P	60 - 160
Hydrocodone	108	101	P/P	60 - 150
Hydrocodone	98.7	108	P/P	60 - 150
Ibuprofen	79.8	94.2	P/P	50 - 160
Ibuprofen	94.2	144	P/P	50 - 160
Imazapyr	107	96.1	P/P	50 - 150
Imazapyr	94.7	107	P/P	50 - 150
Imidacloprid	86.2	97.7	P/P	60 - 150
Imidacloprid	97.7	104	P/P	60 - 150
Linuron	127	84.4	P/P	60 - 150
Linuron	84.4	96.6	P/P	60 - 150
Mandestrobin	115	112	P/P	50 - 150
Mandestrobin	123	115	P/P	50 - 150
MCPP	114	95.8	P/P	50 - 150
MCPP	95.8	84.3	P/P	50 - 150
Naproxen	215*	83.3	F/P	50 - 160
Naproxen	98.1	215*	P/F	50 - 160
Primidone	143	97.3	P/P	60 - 150
Primidone	97.3	106	P/P	60 - 150
Pyraclostrobin	103	95.0	P/P	60 - 150
Pyraclostrobin	95.0	110	P/P	60 - 150
Silvex	86.2	109	P/P	50 - 150
Silvex	93.4	86.2	P/P	50 - 150
Thiamethoxam	108	110	P/P	50 - 150
Thiamethoxam	110	106	P/P	50 - 150
Tolfenpyrad	109	90.2	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A109920

Included Lab Sample IDs: 2299493, 2299494, 2299495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tolfenpyrad	90.2	88.0	P/P	60 - 150
Triclopyr	88.3	89.0	P/P	50 - 150
Triclopyr	89.0	120	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109923

Included Lab Sample IDs: 2299446, 2299447, 2299451

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109953

Included Lab Sample IDs: 2299496, 2299497, 2299498, 2299500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.3	101	P/P	90 - 110
Antimony	100	100	P/P	90 - 110
Arsenic	99.4	99.3	P/P	90 - 110
Barium	101	101	P/P	90 - 110
Beryllium	98.6	99.1	P/P	90 - 110
Boron	98.1	99.9	P/P	90 - 110
Cadmium	100	100	P/P	90 - 110
Chromium	99.3	101	P/P	90 - 110
Cobalt	94.7	95.4	P/P	90 - 110
Copper	96.9	98.0	P/P	90 - 110
Lead	93.7	92.3	P/P	90 - 110
Manganese	99.5	100	P/P	90 - 110
Molybdenum	98.4	98.7	P/P	90 - 110
Nickel	97.2	97.8	P/P	90 - 110
Selenium	99.0	99.7	P/P	90 - 110
Silver	98.9	98.8	P/P	90 - 110
Thallium	105	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109990

Included Lab Sample IDs: 2299499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.9	98.0	P/P	90 - 110
Antimony	97.5	97.5	P/P	90 - 110
Arsenic	98.8	95.8	P/P	90 - 110
Barium	98.0	97.7	P/P	90 - 110
Boron	94.8	94.2	P/P	90 - 110
Cadmium	95.9	95.9	P/P	90 - 110
Chromium	96.6	96.3	P/P	90 - 110
Cobalt	94.6	92.9	P/P	90 - 110
Copper	98.3	95.7	P/P	90 - 110
Manganese	97.5	97.9	P/P	90 - 110
Molybdenum	97.4	95.8	P/P	90 - 110
Nickel	99.1	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A109990

Included Lab Sample IDs: 2299499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	96.9	97.4	P/P	90 - 110
Silver	96.7	95.5	P/P	90 - 110
Thallium	101	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A109998

Included Lab Sample IDs: 2299446, 2299447, 2299451

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A110001

Included Lab Sample IDs: 2299496, 2299497, 2299498, 2299500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	101	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	99.7	98.6	P/P	90 - 110
Sodium	102	101	P/P	90 - 110
Strontium	103	105	P/P	90 - 110
Tin	103	102	P/P	90 - 110
Titanium	102	102	P/P	90 - 110
Vanadium	102	102	P/P	90 - 110
Zinc	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A110004

Included Lab Sample IDs: 2299446, 2299447, 2299451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A110014

Included Lab Sample IDs: 2299499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	96.5	94.3	P/P	90 - 110
Lead	98.5	97.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A110020

Included Lab Sample IDs: 2299499

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A110020

Included Lab Sample IDs: 2299499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sodium	98.4	99.7	P/P	90 - 110
Strontium	103	102	P/P	90 - 110
Tin	104	104	P/P	90 - 110
Titanium	101	101	P/P	90 - 110
Vanadium	103	102	P/P	90 - 110
Zinc	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A110025

Included Lab Sample IDs: 2299446, 2299447

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	94.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A110029

Included Lab Sample IDs: 2299451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	95.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A110040

Included Lab Sample IDs: 2299444, 2299445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Sulfate	99.4	99.8	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A110045

Included Lab Sample IDs: 2299496, 2299499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	98.2	98.2	P/P	90 - 110
Zinc	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A110064

Included Lab Sample IDs: 2299446, 2299447, 2299451

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A110154

Included Lab Sample IDs: 2299450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	98.6	P/P	90 - 110
Sulfate	98.5	98.7	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.10	
EPA 200.7 Rev. 4.4	Calcium	103	99.2	112				0.520
	Calcium	107	105	104				0.288
	Iron	106	105	107	110			1.78
	Iron	109	107	108	109			1.07
	Magnesium	102	103	110				2.06
	Magnesium	105	104	100				1.56
	Potassium	103	103	105	110			1.09
	Potassium	104	104	102	101			1.68
	Sodium	102	103	107				0.289
	Sodium	101	101	99.9				0.458
	Strontium	104	104	103	106			0.802
	Strontium	104	102	102	102			0.337
	Tin	108	105	105	108			0.379
	Tin	110	110	109	107			1.68
	Titanium	107	105	106	108			1.05
	Titanium	104	105	105	104			1.06
	Vanadium	106	107	107	107			0.829
	Vanadium	105	106	107	106			1.06
	Zinc	107	83.8	84.3	106			0.514
	Zinc	110	106	106	104			1.44
EPA 200.8 Rev. 5.4	Aluminum	101	100	98.9	102			1.44
	Aluminum	98.5	96.3	96.2	96.2			0.114
	Antimony	99.2	104	103	99.9			0.367
	Antimony	96.4	99.8	100	99.0			0.226
	Arsenic	102	104	102	102			1.78
	Arsenic	97.0	99.4	100	97.8			0.843
	Barium	105	106	106	106			0.402
	Barium	101	103	103	102			0.406
	Beryllium	102	104	102	103			1.67
	Beryllium	96.4	99.3	101	101			1.51
	Boron	97.6	98.6	97.2	98.6			1.02
	Boron	94.0	91.8	92.2	92.9			0.334
	Cadmium	100	105	102	102			2.77
	Cadmium	95.2	97.4	97.3	97.7			0.0208
	Chromium	102	107	106	104			0.789
	Chromium	97.2	98.9	99.5	98.6			0.584
	Cobalt	99.3	100	98.7	98.1			1.49
	Cobalt	96.8	97.2	97.7	94.3			0.482
	Copper	102	99.0	98.3	102			0.690
	Copper	97.8	97.1	96.5	94.7			0.623
	Lead	95.5	99.1	96.9	97.2			2.24
	Lead	92.3	100	99.5	98.5			0.722
	Manganese	100						0.357
	Manganese	97.5	98.4	98.9	97.7			0.335
	Molybdenum	102	106	105	101			1.10
	Molybdenum	98.1	102	101	99.4			0.645
	Nickel	103	101	99.6	102			1.31
	Nickel	99.8	99.9	99.4	97.0			0.436
	Selenium	99.7	102	101	99.0			0.404
	Selenium	98.2	97.1	99.8	96.0			2.71
	Silver	102	100	100	100			0.312
	Silver	97.2	94.7	94.1	94.6			0.624
	Thallium	105	109	108	107			1.21

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.8 Rev. 5.4	Thallium	102	105	106	104		0.426
EPA 300.0 Rev. 2.1	Chloride	103	104	105		0.631	
	Chloride	99.2	99.6	96.4		1.01	
	Sulfate	99.2	97.9	98.8		0.571	
	Sulfate	97.4	95.3	95.6		0.876	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.6	99.8			0.108
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	109	107			0.937
	Kjeldahl Nitrogen	99.5	99.3	96.8			2.29
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.2	98.6			0.462
EPA 365.1 Rev. 2.0	Total-P	107	107	107			0.229
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	96.7	97.2			0.462
	O-Phosphate-P	99.9	97.5	98.0			0.512
EPA 8321B	2,4-D	102					7.77
	2,4,5-T	85.1	84.6	87.9			3.85
	Acesulfame K	109	36.8	34.3			7.25
	Acetaminophen	88.3	141	137			2.91
	Acetamiprid	91.5	95.7	87.1			9.36
	Afidopyropen	81.1	47.1	54.6			14.8
	AMPA	99.1	42.1	41.0			2.70
	Bentazon	77.6					18.1
	Benzovindiflupyr	67.7	111	121			9.05
	Carbamazepine	90.6	99.3	105			5.07
	Clothianidin	107	99.8	119			17.4
	Dinotefuran	93.2	129	134			3.57
	Diuron	88.8	83.1	81.5			2.00
	Endothall	61.3	143	139			2.63
	Fenuron	102	95.0	94.7			0.416
	Fluridone	91.4					0.233
	Glufosinate	109	58.1	60.3			3.68
	Glyphosate	94.1	73.1	76.8			4.90
	Hydrocodone	88.2	111	107			3.32
	Ibuprofen	76.7	105	93.8			11.7
	Imazapyr	72.3					15.2
	Imidacloprid	91.7					2.89
	Linuron	85.4	45.8	50.1			9.10
	Mandestrobin	89.2	105	114			8.16
	MCPP	102	98.6	111			10.3
	Naproxen	69.6	92.1	94.2			2.22
	Primidone	77.0	148	77.8			62.4
	Pyraclostrobin	77.3	90.6	77.9			15.1
	Silvex	71.1	71.8	90.1			22.6
	Sucralose	116	129	123			4.16
	Thiamethoxam	94.2	158	167			5.20
	Tolfenpyrad	38.5	33.9	63.6			61.0
	Triclopyr	82.3	109	125			14.4
SM 2120 B-2011	Color (true)	101				2.73	
SM 2320 B-2011	Total Alkalinity	98.9				1.38	
SM 2540 C-2011	TDS					7.29	
SM 4500 F-C-2011	Fluoride	97.9	98.2	98.2			0.0
SM 5310 B-2011	Organic Carbon	95.8	94.7	95.5			0.669

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2299444, 2299445, 2299450
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2299496, 2299497, 2299498, 2299499, 2299500
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2299496, 2299497, 2299498, 2299499, 2299500
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2299444, 2299445, 2299450
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2299444, 2299445, 2299450
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2299446, 2299447, 2299451
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2299446, 2299447, 2299451
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2299446, 2299447, 2299451
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2299446, 2299447, 2299451
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2299448, 2299449, 2299452
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2299493, 2299494, 2299495
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2299444, 2299445, 2299450
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2299444, 2299445, 2299450
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2299496, 2299497, 2299498, 2299499, 2299500
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2299444, 2299445, 2299450
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2299444, 2299445, 2299450
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2299444, 2299445, 2299450
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2299446, 2299447, 2299451

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	01/13/2022			01/13/2022 15:45	Khloe J Berg	2299444, 2299445, 2299450
EPA 200.7 Rev. 4.4	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/21/2022 18:06	Josef B Mick	2299496
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/21/2022 18:14	Josef B Mick	2299497
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/21/2022 18:22	Josef B Mick	2299497
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/21/2022 18:30	Josef B Mick	2299498
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/21/2022 18:38	Josef B Mick	2299500
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/26/2022 00:14	Josef B Mick	2299496
	01/13/2022	01/21/2022 09:47	Emily M Philpot	01/24/2022 16:37	Josef B Mick	2299499
	01/13/2022	01/21/2022 09:47	Emily M Philpot	01/26/2022 00:06	Josef B Mick	2299499
EPA 200.8 Rev. 5.4	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/20/2022 21:13	McKinley C Carter	2299496
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/20/2022 21:23	McKinley C Carter	2299497
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/20/2022 21:32	McKinley C Carter	2299498
	01/13/2022	01/20/2022 09:53	Emily M Philpot	01/20/2022 21:42	McKinley C Carter	2299500
	01/13/2022	01/21/2022 09:47	Emily M Philpot	01/21/2022 17:09	Alexander Thompson	2299499
	01/13/2022	01/21/2022 09:47	Emily M Philpot	01/24/2022 13:51	Alexander Thompson	2299499
EPA 300.0 Rev. 2.1	01/13/2022			01/28/2022 07:17	Roberta Tatti	2299444
	01/13/2022			01/28/2022 07:29	Roberta Tatti	2299445
	01/13/2022			01/31/2022 19:08	James L Waggeberby	2299450
EPA 350.1 Rev. 2.0	01/13/2022			01/26/2022 13:49	Ping Hua	2299446
	01/13/2022			01/26/2022 13:50	Ping Hua	2299447
	01/13/2022			01/26/2022 13:52	Ping Hua	2299451
EPA 351.2 Rev. 2.0	01/13/2022	01/24/2022 11:37	Samantha L Bates	01/25/2022 13:38	Alexandra J Mattheus	2299451
	01/13/2022	01/24/2022 11:42	Samantha L Bates	01/25/2022 10:57	Alexandra J Mattheus	2299446
	01/13/2022	01/24/2022 11:42	Samantha L Bates	01/25/2022 11:01	Alexandra J Mattheus	2299447
EPA 353.2 Rev. 2.0	01/13/2022			01/19/2022 11:04	Beverly Y. Sanders	2299446
	01/13/2022			01/19/2022 11:05	Beverly Y. Sanders	2299447
	01/13/2022			01/19/2022 11:06	Beverly Y. Sanders	2299451
EPA 365.1 Rev. 2.0	01/13/2022	01/20/2022 17:50	Simonne.V. Calhoun	01/21/2022 12:30	Shengyu Ding	2299446
	01/13/2022	01/20/2022 17:50	Simonne.V. Calhoun	01/21/2022 12:33	Shengyu Ding	2299447
	01/13/2022	01/20/2022 17:50	Simonne.V. Calhoun	01/21/2022 12:34	Shengyu Ding	2299451
EPA 365.1 Rev. 2.0 dissolved	01/13/2022			01/13/2022 14:50	Ping Hua	2299448
	01/13/2022			01/13/2022 14:51	Ping Hua	2299449
	01/13/2022			01/13/2022 15:35	Ping Hua	2299452
EPA 8321B	01/13/2022	01/13/2022 13:00	Juyoung Kim	01/13/2022 17:15	Manjita Shrestha	2299493
	01/13/2022	01/13/2022 13:00	Juyoung Kim	01/13/2022 17:30	Manjita Shrestha	2299494
	01/13/2022	01/13/2022 13:00	Juyoung Kim	01/13/2022 17:45	Manjita Shrestha	2299495
	01/13/2022	01/13/2022 13:00	Juyoung Kim	01/14/2022 01:42	Juyoung Kim	2299493
	01/13/2022	01/13/2022 13:00	Juyoung Kim	01/14/2022 01:53	Juyoung Kim	2299494
	01/13/2022	01/13/2022 13:00	Juyoung Kim	01/14/2022 02:03	Juyoung Kim	2299495
	01/13/2022	01/18/2022 09:00	Hoor Shaik	01/19/2022 19:57	Juyoung Kim	2299493

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	01/13/2022	01/18/2022 09:00	Hoor Shaik	01/19/2022 20:31	Juyoung Kim	2299494
	01/13/2022	01/18/2022 09:00	Hoor Shaik	01/19/2022 21:40	Juyoung Kim	2299495
SM 2120 B-2011	01/13/2022			01/13/2022 16:42	Sarah A Nixon	2299444, 2299445
	01/13/2022			01/13/2022 17:02	Sarah A Nixon	2299450
SM 2320 B-2011	01/13/2022			01/15/2022 01:51	Dale L. Simmons	2299444
	01/13/2022			01/15/2022 02:05	Dale L. Simmons	2299450
	01/13/2022			01/15/2022 03:50	Dale L. Simmons	2299445
SM 2340B	01/13/2022			01/21/2022 18:06	Josef B Mick	2299496
	01/13/2022			01/21/2022 18:14	Josef B Mick	2299497
	01/13/2022			01/21/2022 18:30	Josef B Mick	2299498
	01/13/2022			01/21/2022 18:38	Josef B Mick	2299500
	01/13/2022			01/24/2022 16:37	Josef B Mick	2299499
SM 2540 C-2011	01/13/2022			01/18/2022 15:32	Yijie Li	2299444, 2299445, 2299450
SM 2540 D-2011	01/13/2022			01/18/2022 15:32	Yijie Li	2299444, 2299445, 2299450
SM 4500 F-C-2011	01/13/2022			01/15/2022 01:51	Dale L. Simmons	2299444
	01/13/2022			01/15/2022 02:05	Dale L. Simmons	2299450
	01/13/2022			01/15/2022 03:50	Dale L. Simmons	2299445
SM 5310 B-2011	01/13/2022			01/21/2022 02:47	Nathaniel J Jones	2299446
	01/13/2022			01/21/2022 03:00	Nathaniel J Jones	2299447
	01/13/2022			01/21/2022 03:41	Nathaniel J Jones	2299451