

Chemical Analysis Report

NW-DIST-2020-04-01-01

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

Event Description: **Eglin Run West**
Request ID: **RQ-2020-03-16-13**
Customer: **NW-DIST**
Project ID: **SMP**

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160 Government Center
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Pensacola, FL 32502-5794
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 20-APR-2020 10:43



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: Juniper Creek upstream of Eglin Rd 221

Collection Date/Time: 03/31/2020 09:45

Field ID: G3NW0170

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169175	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P381993	
		Sulfate	0.70		mg SO4/L	P381999	
	SM 2320 B-2011	Total Alkalinity	1.1	I	mg CaCO3/L	P381922	
	SM 2540 C-2011	TDS	18	I	mg/L	P382032	
	SM 2540 D-2011	TSS	2	I	mg/L	P382026	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381926	
2169178	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P381756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P381726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P381735	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P381741	MS
	SM 5310 B-2011	Organic Carbon	0.87	I	mg C/L	P381809	

Sample Location: Juniper Creek above Hwy 85

Collection Date/Time: 03/31/2020 10:20

Field ID: G3NW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169171	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P381993	
		Sulfate	0.69		mg SO4/L	P381999	
	SM 2320 B-2011	Total Alkalinity	0.85	I	mg CaCO3/L	P381922	
	SM 2540 C-2011	TDS	17	I	mg/L	P382032	
	SM 2540 D-2011	TSS	3	I	mg/L	P382026	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381926	
2169173	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P381756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P381726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.072		mg N/L	P381735	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P381741	MS
	SM 5310 B-2011	Organic Carbon	1.4		mg C/L	P381809	
2169190	EPA 200.7 Rev. 4.4	Barium	7.0		ug/L	P381934	
		Calcium	0.30		mg/L	P381934	
		Iron	54	I	ug/L	P381934	
		Magnesium	0.34		mg/L	P381934	
		Potassium	0.30	U	mg/L	P381934	
		Sodium	1.6	I	mg/L	P381934	
		Zinc	5.0	U	ug/L	P381934	
	EPA 200.8 Rev. 5.4	Aluminum	64		ug/L	P381934	
		Antimony	0.050	U	ug/L	P381934	
		Arsenic	0.050	U	ug/L	P381934	
		Boron**	6.6	I	ug/L	P381934	
		Cadmium	0.020	U	ug/L	P381934	
		Chromium	0.40	U	ug/L	P381934	
		Copper	0.40	U	ug/L	P381934	
		Lead	0.20	U	ug/L	P381934	
		Nickel	0.50	U	ug/L	P381934	
		Selenium	0.20	U	ug/L	P381934	
		Silver	0.010	U	ug/L	P381934	
		Thallium	0.10	U	ug/L	P381934	
		Hardness	2.1		mg/L	P381934	
	SM 2340B						

Sample Location: Toms Creek upstream of Hwy 85

Collection Date/Time: 03/31/2020 10:45

Field ID: G3NW0150

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169176	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P381993	
		Sulfate	1.4		mg SO4/L	P381999	
	SM 2320 B-2011	Total Alkalinity	3.1		mg CaCO3/L	P381988	
	SM 2540 C-2011	TDS	23	I	mg/L	P382032	
	SM 2540 D-2011	TSS	5	I	mg/L	P382026	
	SM 4500 F-C-2011	Fluoride	0.035	UJ	mg F/L	P381927	MS, RPD
2169179	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P381756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P381726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P381735	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P381741	MS
	SM 5310 B-2011	Organic Carbon	1.5		mg C/L	P381809	

Ref. Method and Comment:

SM 4500 F-C-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Direct Runoff to Choctawhatchee Bay below Oregon Drive

Collection Date/Time: 03/31/2020 11:15

Field ID: G3NW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169177	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P381993	
		Sulfate	6.8		mg SO4/L	P381999	
	SM 2320 B-2011	Total Alkalinity	51		mg CaCO3/L	P381988	
	SM 2540 C-2011	TDS	110		mg/L	P382032	
	SM 2540 D-2011	TSS	114		mg/L	P382026	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P381927	MS, RPD
2169180	EPA 350.1 Rev. 2.0	Ammonia-N	0.25		mg N/L	P381757	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.8		mg N/L	P381727	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P381735	
	EPA 365.1 Rev. 2.0	Total-P	0.45		mg P/L	P381741	MS
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P381809	

Sample Location: Gap Creek powerline South of Overbrook Drive Collection Date/Time: 03/31/2020 11:40

Field ID: G3NW0142

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169169	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P381993	
		Sulfate	6.3		mg SO4/L	P381999	
	SM 2320 B-2011	Total Alkalinity	18		mg CaCO3/L	P381922	
	SM 2540 C-2011	TDS	72		mg/L	P382031	
	SM 2540 D-2011	TSS	3	I	mg/L	P382025	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P381926	
2169170	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P381756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P381726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P381735	
	EPA 365.1 Rev. 2.0	Total-P	0.009	J	mg P/L	P381741	MS
	SM 5310 B-2011	Organic Carbon	5.1		mg C/L	P381809	
2169188	EPA 8321B	2,4-D	0.024		ug/L	P381729	
		Acesulfame K**	0.10	U	ug/L	P381772	MS
		AMPA**	0.10	U	ug/L	P381772	
		Sucralose**	0.13		ug/L	P381772	
		Acetaminophen**	0.0080	U	ug/L	P381729	
		Acetamiprid**	0.0020	U	ug/L	P381729	
		Endothall**	0.25	U	ug/L	P381772	
		Glufosinate**	0.10	U	ug/L	P381772	
		Glyphosate**	0.10	U	ug/L	P381772	
		Afidopyropen**	0.0020	UJ	ug/L	P381729	
		Bentazon	0.0016	I	ug/L	P381729	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P381729	
		Carbamazepine**	8.0E-04	U	ug/L	P381729	
		Clothianidin**	0.0020	U	ug/L	P381729	
		Dinotefuran**	0.0020	U	ug/L	P381729	
		Diuron	0.0020	U	ug/L	P381729	
		Fenuron	0.016	U	ug/L	P381729	
		Fluridone**	8.0E-04	U	ug/L	P381729	
		Imazapyr**	0.0081	I	ug/L	P381729	
		Hydrocodone**	0.0020	U	ug/L	P381729	
		Ibuprofen**	0.020	U	ug/L	P381729	
		Imidacloprid	0.022		ug/L	P381729	
		Linuron	0.0040	U	ug/L	P381729	
		Mandestrobin**	0.0020	UJ	ug/L	P381729	
		MCPP	0.0029	I	ug/L	P381729	
		Naproxen**	0.0080	U	ug/L	P381729	
		Primidone**	0.0040	U	ug/L	P381729	
		Pyraclostrobin**	0.0020	U	ug/L	P381729	
		Thiamethoxam**	0.0020	U	ug/L	P381729	
		Tolfenpyrad**	0.0020	U	ug/L	P381729	
		Triclopyr**	0.0040	U	ug/L	P381729	
2169189	EPA 200.7 Rev. 4.4	Barium	10.6		ug/L	P381934	
		Calcium	7.51		mg/L	P381934	

Field ID: G3NW0142

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169189	EPA 200.7 Rev. 4.4	Iron	440		ug/L	P381934	
		Magnesium	0.97		mg/L	P381934	
		Potassium	0.77	I	mg/L	P381934	
		Sodium	12.8		mg/L	P381934	
		Zinc	5.0	U	ug/L	P381934	
	EPA 200.8 Rev. 5.4	Aluminum	139		ug/L	P381934	
		Antimony	0.055	I	ug/L	P381934	
		Arsenic	0.49		ug/L	P381934	
		Boron**	38.9		ug/L	P381934	
		Cadmium	0.020	U	ug/L	P381934	
		Chromium	0.45	I	ug/L	P381934	
		Copper	0.84		ug/L	P381934	
		Lead	0.20	U	ug/L	P381934	
		Nickel	0.50	U	ug/L	P381934	
		Selenium	0.20	U	ug/L	P381934	
		Silver	0.010	U	ug/L	P381934	
		Thallium	0.10	U	ug/L	P381934	
	SM 2340B	Hardness	22.7		mg/L	P381934	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for bentazon could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Gap Creek South Of Gail La Rue Cul-de-sac

Collection Date/Time: 03/31/2020 12:00

Field ID: G3NW0208

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2169172	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P381993	
		Sulfate	1.8		mg SO4/L	P381999	
	SM 2320 B-2011	Total Alkalinity	43		mg CaCO3/L	P381922	
	SM 2540 C-2011	TDS	98		mg/L	P382032	
	SM 2540 D-2011	TSS	2	I	mg/L	P382026	
	SM 4500 F-C-2011	Fluoride	0.040	I	mg F/L	P381926	
2169174	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P381756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P381726	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P381735	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P381741	MS
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P381809	
2169191	EPA 200.7 Rev. 4.4	Barium	13.5		ug/L	P381934	
		Calcium	16.6		mg/L	P381934	
		Iron	880		ug/L	P381934	
		Magnesium	1.76		mg/L	P381934	
		Potassium	0.85	I	mg/L	P381934	
		Sodium	9.0		mg/L	P381934	
		Zinc	5.0	U	ug/L	P381934	
	EPA 200.8 Rev. 5.4	Aluminum	145		ug/L	P381934	
		Antimony	0.053	I	ug/L	P381934	
		Arsenic	0.85		ug/L	P381934	
		Boron**	32.3		ug/L	P381934	
		Cadmium	0.020	U	ug/L	P381934	
		Chromium	0.40	U	ug/L	P381934	
		Copper	0.40	U	ug/L	P381934	
		Lead	0.24	I	ug/L	P381934	
		Nickel	0.50	U	ug/L	P381934	
		Selenium	0.20	U	ug/L	P381934	
		Silver	0.010	U	ug/L	P381934	
		Thallium	0.10	U	ug/L	P381934	
	SM 2340B	Hardness	48.6		mg/L	P381934	

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381934

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
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: P381934

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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: P381993

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381999

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381756

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381757

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381726

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381727

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381735

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381741

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

Reference Method: EPA 8321B
Batch ID: P381729

Component	Result	Code	Units
2,4-D	0.0020	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P381772

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: SM 2320 B-2011
Batch ID: P381922

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

Reference Method: SM 2320 B-2011
Batch ID: P381988

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

Reference Method: SM 2540 C-2011
Batch ID: P382031

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P382032

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P382025

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P382026

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381926

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P381927

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P381809

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: P381934

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	97.5		P	85 - 115
Calcium	103		P	85 - 115
Iron	102		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	97.4		P	85 - 115
Sodium	102		P	85 - 115
Zinc	98.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381934

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.1		P	85 - 115
Antimony	97.1		P	85 - 115
Arsenic	98.8		P	85 - 115
Boron	101		P	85 - 115
Cadmium	96.3		P	85 - 115
Chromium	97.2		P	85 - 115
Copper	97.6		P	85 - 115
Lead	96.7		P	85 - 115
Nickel	96.2		P	85 - 115
Selenium	95.3		P	85 - 115
Silver	98.1		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381993

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381999

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381756

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381757

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381726

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: P381727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381735

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	93.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381741

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

Reference Method: EPA 8321B
Batch ID: P381729

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	115		P	30 - 160
Acetaminophen	66.6		P	30 - 160
Acetamiprid	94.2		P	30 - 160
Afidopyropen	92.7		P	30 - 160
Bentazon	54.3		P	30 - 160
Benzovindiflupyr	78.1		P	30 - 160
Carbamazepine	110		P	30 - 160
Clothianidin	79.8		P	30 - 160
Dinotefuran	71.5		P	30 - 160
Diuron	94.1		P	30 - 160
Fenuron	100		P	30 - 160
Fluridone	82.1		P	30 - 160
Hydrocodone	82.5		P	30 - 160
Ibuprofen	72.8		P	30 - 160
Imazapyr	73.8		P	30 - 160
Imidacloprid	107		P	30 - 160
Linuron	64.4		P	30 - 160
Mandestrobin	80.0		P	30 - 160
MCPP	124		P	30 - 160
Naproxen	69.1		P	30 - 160
Primidone	91.9		P	30 - 160
Pyraclostrobin	77.8		P	30 - 160
Thiamethoxam	90.2		P	30 - 160
Tolfenpyrad	52.5		P	30 - 160
Triclopyr	98.0		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P381772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	102		P	40 - 150
AMPA	88.5		P	40 - 150
Endothall	92.0		P	40 - 150
Glufosinate	101		P	40 - 150
Glyphosate	95.7		P	40 - 140
Sucralose	99.4		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P381922

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.2		P	98 - 107

Reference Method: SM 2320 B-2011
Batch ID: P381988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	98 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P381926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	104		P	92 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P381927

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P381809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169189	Barium	97.4	97.6	P/P	80 - 120
2169189	Calcium	101		P	80 - 120
2169189	Iron	105	105	P/P	80 - 120
2169189	Magnesium	104	104	P/P	80 - 120
2169189	Potassium	96.8	97.3	P/P	80 - 120
2169189	Sodium	99.7		P	80 - 120
2169189	Zinc	100	101	P/P	80 - 120
2169190	Barium	95.2		P	80 - 120
2169190	Calcium	98.8		P	80 - 120
2169190	Iron	102		P	80 - 120
2169190	Magnesium	103		P	80 - 120
2169190	Potassium	99.9		P	80 - 120
2169190	Sodium	93.3		P	80 - 120
2169190	Zinc	95.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381934

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169189	Aluminum	94.8	93.0	P/P	80 - 120
2169189	Antimony	96.8	95.2	P/P	80 - 120
2169189	Arsenic	96.6	96.4	P/P	80 - 120
2169189	Boron	101	98.8	P/P	80 - 120
2169189	Cadmium	97.8	96.5	P/P	80 - 120
2169189	Chromium	96.1	95.9	P/P	80 - 120
2169189	Copper	95.8	95.0	P/P	80 - 120
2169189	Lead	96.2	96.0	P/P	80 - 120
2169189	Nickel	94.8	94.4	P/P	80 - 120
2169189	Selenium	91.3	92.3	P/P	80 - 120
2169189	Silver	96.9	94.9	P/P	80 - 120
2169189	Thallium	102	101	P/P	80 - 120
2169190	Aluminum	94.7		P	80 - 120
2169190	Antimony	95.1		P	80 - 120
2169190	Arsenic	97.1		P	80 - 120
2169190	Boron	100		P	80 - 120
2169190	Cadmium	96.0		P	80 - 120
2169190	Chromium	95.5		P	80 - 120
2169190	Copper	94.9		P	80 - 120
2169190	Lead	96.5		P	80 - 120
2169190	Nickel	93.5		P	80 - 120
2169190	Selenium	91.9		P	80 - 120
2169190	Silver	95.7		P	80 - 120
2169190	Thallium	101		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169120	Chloride	99.8		P	90 - 110
2169169	Chloride	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169120	Sulfate	101		P	90 - 110
2169169	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169173	Ammonia-N	98.5	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169200	Ammonia-N	105	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381726

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169173	Kjeldahl Nitrogen	105	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169200	Kjeldahl Nitrogen	98.9	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381735

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169170	NO2NO3-N	93.4	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169170	Total-P	108	110	P/F	90 - 110

Reference Method: EPA 8321B
Batch ID: P381729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169069	2,4-D	119	111	P/P	30 - 160
2169069	Acetaminophen	101	88.6	P/P	30 - 160
2169069	Acetamiprid	90.9	81.2	P/P	30 - 160
2169069	Afidopyropen	110	96.1	P/P	30 - 160
2169069	Benzovindiflupyr	87.2	75.0	P/P	30 - 160
2169069	Carbamazepine	91.1	80.7	P/P	30 - 160
2169069	Clothianidin	82.2	78.3	P/P	30 - 160
2169069	Dinotefuran	92.8	92.5	P/P	30 - 160
2169069	Diuron	96.4	83.4	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P381729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169069	Fenuron	66.4	58.8	P/P	30 - 160
2169069	Fluridone	89.5	73.5	P/P	30 - 160
2169069	Hydrocodone	86.6	76.6	P/P	30 - 160
2169069	Ibuprofen	73.9	63.1	P/P	30 - 160
2169069	Imazapyr	110	89.1	P/P	30 - 160
2169069	Imidacloprid	144	125	P/P	30 - 160
2169069	Linuron	66.7	53.9	P/P	30 - 160
2169069	Mandestrobin	91.1	78.4	P/P	30 - 160
2169069	MCP	127	111	P/P	30 - 160
2169069	Naproxen	80.9	66.9	P/P	30 - 160
2169069	Primidone	82.2	70.3	P/P	30 - 160
2169069	Pyraclostrobin	90.5	80.8	P/P	30 - 160
2169069	Thiamethoxam	116	100	P/P	30 - 160
2169069	Tolfenpyrad	60.3	51.6	P/P	30 - 160
2169069	Triclopyr	118	102	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P381772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169045	Acesulfame K	18.8	18.0	F/F	40 - 150
2169045	AMPA	59.9	56.5	P/P	40 - 150
2169045	Endothall	98.6	111	P/P	40 - 150
2169045	Glufosinate	93.7	89.1	P/P	40 - 150
2169045	Glyphosate	100	84.2	P/P	40 - 140
2169045	Sucralose	95.5	87.1	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P381926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169398	Fluoride	103	102	P/P	91 - 105

Reference Method: SM 4500 F-C-2011
Batch ID: P381927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169176	Fluoride	106	103	F/P	91 - 105

Reference Method: SM 5310 B-2011
Batch ID: P381809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2169174	Organic Carbon	94.2	94.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P381934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169189	Barium	0.180	Spike	P	0 - 20
2169189	Calcium	0.112	Spike	P	0 - 20
2169189	Iron	0.419	Spike	P	0 - 20
2169189	Magnesium	0.417	Spike	P	0 - 20
2169189	Potassium	0.401	Spike	P	0 - 20
2169189	Sodium	0.333	Spike	P	0 - 20
2169189	Zinc	0.186	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P381934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169189	Aluminum	1.60	Spike	P	0 - 20
2169189	Antimony	1.70	Spike	P	0 - 20
2169189	Arsenic	0.221	Spike	P	0 - 20
2169189	Boron	1.69	Spike	P	0 - 20
2169189	Cadmium	1.26	Spike	P	0 - 20
2169189	Chromium	0.240	Spike	P	0 - 20
2169189	Copper	0.780	Spike	P	0 - 20
2169189	Lead	0.207	Spike	P	0 - 20
2169189	Nickel	0.405	Spike	P	0 - 20
2169189	Selenium	1.07	Spike	P	0 - 20
2169189	Silver	2.03	Spike	P	0 - 20
2169189	Thallium	0.302	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169120	Chloride	1.33	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169120	Sulfate	0.882	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169173	Ammonia-N	2.93	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169200	Ammonia-N	1.87	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169173	Kjeldahl Nitrogen	2.78	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169200	Kjeldahl Nitrogen	4.05	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381735

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169170	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169170	Total-P	1.89	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P381729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169069	2,4-D	5.17	Spike	P	0 - 30
2169069	Acetaminophen	12.7	Spike	P	0 - 30
2169069	Acetamiprid	11.2	Spike	P	0 - 30
2169069	Afidopyropen	13.5	Spike	P	0 - 30
2169069	Bentazon	6.74	Spike	P	0 - 30
2169069	Benzovindiflupyr	15.1	Spike	P	0 - 30
2169069	Carbamazepine	12.1	Spike	P	0 - 30
2169069	Clothianidin	4.66	Spike	P	0 - 30
2169069	Dinotefuran	0.228	Spike	P	0 - 30
2169069	Diuron	14.4	Spike	P	0 - 30
2169069	Fenuron	12.1	Spike	P	0 - 30
2169069	Fluridone	15.7	Spike	P	0 - 30
2169069	Hydrocodone	12.3	Spike	P	0 - 30
2169069	Ibuprofen	15.8	Spike	P	0 - 30
2169069	Imazapyr	15.7	Spike	P	0 - 30
2169069	Imidacloprid	13.4	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P381729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169069	Linuron	21.3	Spike	P	0 - 30
2169069	Mandestrobin	15.0	Spike	P	0 - 30
2169069	MCP	13.9	Spike	P	0 - 30
2169069	Naproxen	19.0	Spike	P	0 - 30
2169069	Primidone	15.6	Spike	P	0 - 30
2169069	Pyraclostrobin	11.3	Spike	P	0 - 30
2169069	Thiamethoxam	13.4	Spike	P	0 - 30
2169069	Tolfenpyrad	15.6	Spike	P	0 - 30
2169069	Triclopyr	14.2	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P381772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169045	Acesulfame K	4.28	Spike	P	0 - 30
2169045	AMPA	3.91	Spike	P	0 - 30
2169045	Endothall	11.7	Spike	P	0 - 30
2169045	Glufosinate	5.02	Spike	P	0 - 30
2169045	Glyphosate	15.5	Spike	P	0 - 30
2169045	Sucralose	9.15	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P381922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169398	Total Alkalinity	0.298	Sample	P	0 - 3.3

Reference Method: SM 2320 B-2011
Batch ID: P381988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169288	Total Alkalinity	0.372	Sample	P	0 - 3.3

Reference Method: SM 2540 C-2011
Batch ID: P382031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169064	TDS	5.10	Sample	P	0 - 10

Reference Method: SM 2540 C-2011
Batch ID: P382032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169257	TDS	8.91	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-2011
Batch ID: P382026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169257	TSS	6.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169398	Fluoride	1.40	Spike	P	0 - 2.0

Reference Method: SM 4500 F-C-2011
Batch ID: P381927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169176	Fluoride	2.85	Spike	F	0 - 2.0

Reference Method: SM 5310 B-2011
Batch ID: P381809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2169174	Organic Carbon	0.0617	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2169188

Field Sample ID: G3NW0142

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	111	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	119	P	30 - 160
EPA 8321B	Diuron-d6	112	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Endothall-d6	105	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	93.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	93.6	P	30 - 160
EPA 8321B	Ibuprofen-d3	91.2	P	30 - 160
EPA 8321B	Primidone-d5	104	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98609

Included Lab Sample IDs: 2169170, 2169173, 2169174, 2169178, 2169179, 2169180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.5	94.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98623

Included Lab Sample IDs: 2169170, 2169173, 2169174, 2169178, 2169179, 2169180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A98644

Included Lab Sample IDs: 2169170, 2169173, 2169174, 2169178, 2169179, 2169180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.4	P/P	90 - 110
Organic Carbon	96.4	96.7	P/P	90 - 110
Organic Carbon	96.7	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98647

Included Lab Sample IDs: 2169180

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98649

Included Lab Sample IDs: 2169170, 2169173, 2169174, 2169178, 2169179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	96.5	P/P	90 - 110
Total-P	97.5	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98650

Included Lab Sample IDs: 2169180

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98651

Included Lab Sample IDs: 2169170, 2169173, 2169174, 2169178, 2169179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	92.0	P/P	90 - 110
Kjeldahl Nitrogen	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98686

Included Lab Sample IDs: 2169169, 2169171, 2169172, 2169175, 2169176, 2169177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	100	100	P/P	90 - 110
Chloride	99.5	100	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98689

Included Lab Sample IDs: 2169188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.3	95.5	P/P	50 - 150
Acetaminophen	87.1	93.0	P/P	60 - 160
Acetamiprid	96.6	96.5	P/P	50 - 150
Afidopyropen	91.0	99.8	P/P	50 - 150
Bentazon	87.5	71.0	P/P	50 - 160
Benzovindiflupyr	104	110	P/P	50 - 150
Carbamazepine	96.9	99.6	P/P	60 - 150
Clothianidin	90.9	96.0	P/P	60 - 150
Dinotefuran	85.4	87.8	P/P	50 - 150
Diuron	97.3	98.4	P/P	60 - 160
Fenuron	88.9	88.3	P/P	60 - 150
Fluridone	109	110	P/P	60 - 160
Hydrocodone	97.7	107	P/P	60 - 150
Ibuprofen	108	99.0	P/P	50 - 160
Imazapyr	102	98.1	P/P	50 - 150
Imidacloprid	91.7	102	P/P	60 - 150
Linuron	106	105	P/P	60 - 150
Mandestrobin	104	112	P/P	50 - 150
MCP	98.6	91.9	P/P	50 - 150
Naproxen	106	134	P/P	50 - 160
Primidone	94.9	86.1	P/P	60 - 150
Pyraclostrobin	113	116	P/P	60 - 150
Thiamethoxam	89.4	96.6	P/P	50 - 150
Tolfenpyrad	98.7	116	P/P	60 - 150
Triclopyr	86.3	96.9	P/P	50 - 150

Reference Method: SM 2320 B-2011

Run ID: A98694

Included Lab Sample IDs: 2169169, 2169171, 2169172, 2169175

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	96.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A98694

Included Lab Sample IDs: 2169169, 2169171, 2169172, 2169175, 2169176, 2169177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A98694

Included Lab Sample IDs: 2169169, 2169171, 2169172, 2169175, 2169176, 2169177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	106	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98699

Included Lab Sample IDs: 2169188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	105	103	P/P	60 - 160
Endothall	101	102	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A98702

Included Lab Sample IDs: 2169188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	83.3	83.8	P/P	40 - 200
Glufosinate	111	109	P/P	40 - 200
Glyphosate	104	97.0	P/P	40 - 200

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98721

Included Lab Sample IDs: 2169189, 2169190, 2169191

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	99.9	P/P	90 - 110
Aluminum	97.9	97.5	P/P	90 - 110
Aluminum	99.9	97.9	P/P	90 - 110
Arsenic	101	98.9	P/P	90 - 110
Arsenic	98.5	97.7	P/P	90 - 110
Arsenic	98.9	98.5	P/P	90 - 110
Boron	101	106	P/P	90 - 110
Boron	101	101	P/P	90 - 110
Boron	106	101	P/P	90 - 110
Cadmium	96.7	98.4	P/P	90 - 110
Cadmium	99.0	99.4	P/P	90 - 110
Cadmium	99.4	96.7	P/P	90 - 110
Chromium	93.3	94.5	P/P	90 - 110
Chromium	95.7	93.3	P/P	90 - 110
Chromium	96.5	95.7	P/P	90 - 110
Copper	94.1	94.0	P/P	90 - 110
Copper	95.2	94.1	P/P	90 - 110
Copper	98.0	95.2	P/P	90 - 110
Lead	98.0	97.8	P/P	90 - 110
Lead	99.0	98.0	P/P	90 - 110
Lead	99.1	99.0	P/P	90 - 110
Nickel	94.0	94.7	P/P	90 - 110
Nickel	96.4	94.0	P/P	90 - 110
Nickel	98.5	96.4	P/P	90 - 110
Selenium	96.3	96.1	P/P	90 - 110
Selenium	97.9	96.3	P/P	90 - 110
Selenium	99.6	97.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98721

Included Lab Sample IDs: 2169189, 2169190, 2169191

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	93.8	94.8	P/P	90 - 110
Silver	94.8	93.8	P/P	90 - 110
Silver	95.2	94.8	P/P	90 - 110
Thallium	94.7	94.2	P/P	90 - 110
Thallium	96.1	96.2	P/P	90 - 110
Thallium	96.2	94.7	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98727

Included Lab Sample IDs: 2169176, 2169177

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A98738

Included Lab Sample IDs: 2169189, 2169190, 2169191

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	94.1	94.8	P/P	90 - 110
Antimony	94.8	95.1	P/P	90 - 110
Antimony	94.8	94.1	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A98761

Included Lab Sample IDs: 2169189, 2169190, 2169191

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	100	P/P	90 - 110
Calcium	100	101	P/P	90 - 110
Iron	105	105	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	100	101	P/P	90 - 110
Sodium	98.9	99.9	P/P	90 - 110
Zinc	96.9	98.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A98790

Included Lab Sample IDs: 2169188

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	102	P/P	60 - 160

* 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			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Barium	97.5	97.4	97.6	95.2		0.180
	Calcium	103	101	98.8			0.112
	Iron	102	105	105	102		0.419
	Magnesium	104	104	104	103		0.417
	Potassium	97.4	96.8	97.3	99.9		0.401
	Sodium	102	99.7	93.3			0.333
	Zinc	98.9	100	101	95.6		0.186
EPA 200.8 Rev. 5.4	Aluminum	97.1	94.8	93.0	94.7		1.60
	Antimony	97.1	96.8	95.2	95.1		1.70
	Arsenic	98.8	96.6	96.4	97.1		0.221
	Boron	101	101	98.8	100		1.69
	Cadmium	96.3	97.8	96.5	96.0		1.26
	Chromium	97.2	96.1	95.9	95.5		0.240
	Copper	97.6	95.8	95.0	94.9		0.780
	Lead	96.7	96.2	96.0	96.5		0.207
	Nickel	96.2	94.8	94.4	93.5		0.405
	Selenium	95.3	91.3	92.3	91.9		1.07
	Silver	98.1	96.9	94.9	95.7		2.03
	Thallium	102	102	101	101		0.302
EPA 300.0 Rev. 2.1	Chloride	100	99.8	102		1.33	
	Sulfate	101	101	101		0.882	
EPA 350.1 Rev. 2.0	Ammonia-N	103	98.5	102			2.93
	Ammonia-N	105	105	103			1.87
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	105	108			2.78
	Kjeldahl Nitrogen	98.9	98.9	104			4.05
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	93.5	93.4	93.4			0.0
EPA 365.1 Rev. 2.0	Total-P	107	108	110			1.89
EPA 8321B	2,4-D	115	119	111			5.17
	Acesulfame K	102	18.8	18.0			4.28
	Acetaminophen	66.6	101	88.6			12.7
	Acetamiprid	94.2	90.9	81.2			11.2
	Afidopyropen	92.7	110	96.1			13.5
	AMPA	88.5	59.9	56.5			3.91
	Bentazon	54.3					6.74
	Benzovindiflupyr	78.1	87.2	75.0			15.1
	Carbamazepine	110	91.1	80.7			12.1
	Clothianidin	79.8	82.2	78.3			4.66
	Dinotefuran	71.5	92.8	92.5			0.228
	Diuron	94.1	96.4	83.4			14.4
	Endothall	92.0	98.6	111			11.7
	Fenuron	100	66.4	58.8			12.1
	Fluridone	82.1	89.5	73.5			15.7
	Glufosinate	101	93.7	89.1			5.02
	Glyphosate	95.7	100	84.2			15.5
	Hydrocodone	82.5	86.6	76.6			12.3
	Ibuprofen	72.8	73.9	63.1			15.8
	Imazapyr	73.8	110	89.1			15.7
	Imidacloprid	107	144	125			13.4
	Linuron	64.4	66.7	53.9			21.3
	Mandestrobin	80.0	91.1	78.4			15.0
	MCPP	124	127	111			13.9
	Naproxen	69.1	80.9	66.9			19.0
	Primidone	91.9	82.2	70.3			15.6
	Pyraclostrobin	77.8	90.5	80.8			11.3

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Sucralose	99.4	87.1	95.5		9.15
	Thiamethoxam	90.2	116	100		13.4
	Tolfenpyrad	52.5	60.3	51.6		15.6
	Triclopyr	98.0	118	102		14.2
SM 2320 B-2011	Total Alkalinity	98.2			0.298	
	Total Alkalinity	99.0			0.372	
SM 2540 C-2011	TDS				5.10	
	TDS				8.91	
SM 2540 D-2011	TSS				6.06	
SM 4500 F-C-2011	Fluoride	104	103	102		1.40
	Fluoride	103	106	103		2.85
SM 5310 B-2011	Organic Carbon	94.8	94.2	94.3		0.0617

Reference Method Descriptions

Method	Description	Associated Samples
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2169189, 2169190, 2169191
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2169189, 2169190, 2169191
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2169170, 2169173, 2169174, 2169178, 2169179, 2169180
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2169170, 2169173, 2169174, 2169178, 2169179, 2169180
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2169170, 2169173, 2169174, 2169178, 2169179, 2169180
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2169170, 2169173, 2169174, 2169178, 2169179, 2169180
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2169188
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2169188
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2169189, 2169190, 2169191
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2169170, 2169173, 2169174, 2169178, 2169179, 2169180

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 200.7 Rev. 4.4	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/13/2020 20:35	Betina Topolski	2169189
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/13/2020 21:02	Betina Topolski	2169190
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/13/2020 21:21	Betina Topolski	2169191
EPA 200.8 Rev. 5.4	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/09/2020 17:16	Alexander Thompson	2169189
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/09/2020 19:34	Alexander Thompson	2169190
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/09/2020 20:33	Alexander Thompson	2169191
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/10/2020 15:09	Alexander Thompson	2169189
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/10/2020 16:47	Alexander Thompson	2169190
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/10/2020 17:29	Alexander Thompson	2169191
	04/01/2020	04/08/2020 14:50	Alexander Thompson	04/10/2020 17:29	Alexander Thompson	2169191
EPA 300.0 Rev. 2.1	04/01/2020			04/09/2020 08:18	Jhamieka S. Greenwood	2169169
	04/01/2020			04/09/2020 11:21	Jhamieka S. Greenwood	2169171
	04/01/2020			04/09/2020 11:34	Jhamieka S. Greenwood	2169172
	04/01/2020			04/09/2020 11:47	Jhamieka S. Greenwood	2169175
	04/01/2020			04/09/2020 12:00	Jhamieka S. Greenwood	2169176
EPA 350.1 Rev. 2.0	04/01/2020			04/09/2020 12:39	Jhamieka S. Greenwood	2169177
	04/01/2020			04/02/2020 14:20	Julia Storbeck	2169173
	04/01/2020			04/02/2020 14:28	Julia Storbeck	2169170
	04/01/2020			04/02/2020 14:37	Julia Storbeck	2169174
	04/01/2020			04/02/2020 14:38	Julia Storbeck	2169178
	04/01/2020			04/02/2020 14:40	Julia Storbeck	2169179
EPA 351.2 Rev. 2.0	04/01/2020			04/02/2020 18:21	Julia Storbeck	2169180
	04/01/2020	04/02/2020 14:50	Jhamieka S. Greenwood	04/03/2020 18:06	Jhamieka S. Greenwood	2169180
	04/01/2020	04/02/2020 14:50	Jhamieka S. Greenwood	04/03/2020 19:17	Jhamieka S. Greenwood	2169173
	04/01/2020	04/02/2020 14:50	Jhamieka S. Greenwood	04/03/2020 19:33	Jhamieka S. Greenwood	2169170
	04/01/2020	04/02/2020 14:50	Jhamieka S. Greenwood	04/03/2020 19:35	Jhamieka S. Greenwood	2169174
	04/01/2020	04/02/2020 14:50	Jhamieka S. Greenwood	04/03/2020 19:36	Jhamieka S. Greenwood	2169178
EPA 353.2 Rev. 2.0	04/01/2020	04/02/2020 14:50	Jhamieka S. Greenwood	04/03/2020 19:37	Jhamieka S. Greenwood	2169179
	04/01/2020			04/02/2020 16:12	Lauren Lees	2169170
	04/01/2020			04/02/2020 16:20	Lauren Lees	2169173
	04/01/2020			04/02/2020 16:22	Lauren Lees	2169174
	04/01/2020			04/02/2020 16:23	Lauren Lees	2169178
	04/01/2020			04/02/2020 16:24	Lauren Lees	2169179
EPA 365.1 Rev. 2.0	04/01/2020			04/02/2020 16:25	Lauren Lees	2169180
	04/01/2020	04/02/2020 15:18	Yen Ta	04/03/2020 15:41	Benjamin T. Nordmann	2169180
	04/01/2020	04/02/2020 15:18	Yen Ta	04/03/2020 15:45	Benjamin T. Nordmann	2169170
	04/01/2020	04/02/2020 15:18	Yen Ta	04/03/2020 15:46	Benjamin T. Nordmann	2169173
	04/01/2020	04/02/2020 15:18	Yen Ta	04/03/2020 15:47	Benjamin T. Nordmann	2169174
	04/01/2020	04/02/2020 15:18	Yen Ta	04/03/2020 15:55	Benjamin T. Nordmann	2169178
EPA 8321B	04/01/2020	04/02/2020 15:18	Yen Ta	04/03/2020 15:56	Benjamin T. Nordmann	2169179
	04/01/2020	04/03/2020 11:30	Rebecca Ware	04/03/2020 14:11	Rebecca Ware	2169188

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/01/2020	04/03/2020 11:30	Rebecca Ware	04/06/2020 16:33	Rebecca Ware	2169188
	04/01/2020	04/03/2020 11:30	Rebecca Ware	04/14/2020 20:14	Rebecca Ware	2169188
	04/01/2020	04/06/2020 09:00	Hoor Shaik	04/08/2020 12:32	Juyoung Kim	2169188
SM 2320 B-2011	04/01/2020			04/07/2020 14:06	Samantha Davila	2169171
	04/01/2020			04/07/2020 14:15	Samantha Davila	2169175
	04/01/2020			04/07/2020 14:28	Samantha Davila	2169169
	04/01/2020			04/07/2020 14:40	Samantha Davila	2169172
	04/01/2020			04/10/2020 00:44	Samantha Davila	2169176
	04/01/2020			04/10/2020 00:54	Samantha Davila	2169177
	04/01/2020			04/13/2020 20:35	Betina Topolski	2169189
SM 2340B	04/01/2020			04/13/2020 21:02	Betina Topolski	2169190
	04/01/2020			04/13/2020 21:21	Betina Topolski	2169191
SM 2540 C-2011	04/01/2020			04/03/2020 14:49	Yijie Li	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
SM 2540 D-2011	04/01/2020			04/03/2020 14:49	Yijie Li	2169169, 2169171, 2169172, 2169175, 2169176, 2169177
SM 4500 F-C-2011	04/01/2020			04/07/2020 14:06	Samantha Davila	2169171
	04/01/2020			04/07/2020 14:15	Samantha Davila	2169175
	04/01/2020			04/07/2020 14:28	Samantha Davila	2169169
	04/01/2020			04/07/2020 14:40	Samantha Davila	2169172
	04/01/2020			04/07/2020 16:45	Samantha Davila	2169176
	04/01/2020			04/07/2020 17:13	Samantha Davila	2169177
SM 5310 B-2011	04/01/2020			04/03/2020 05:55	Madeline Gruver	2169174
	04/01/2020			04/03/2020 08:23	Madeline Gruver	2169170
	04/01/2020			04/03/2020 08:36	Madeline Gruver	2169173
	04/01/2020			04/03/2020 08:51	Madeline Gruver	2169178
	04/01/2020			04/03/2020 09:31	Madeline Gruver	2169179
	04/01/2020			04/03/2020 09:44	Madeline Gruver	2169180