

Chemical Analysis Report

NE-DIST-2021-06-09-02

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

Event Description: **Suwannee Spring**

Request ID: **RQ-2021-05-03-28**

Customer: **NE-DIST**

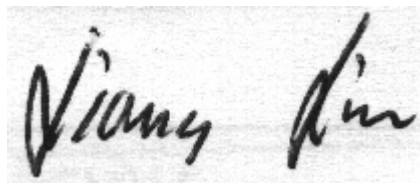
Project ID: **SMP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 01-JUL-2021 14:15

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: COW CREEK AT SR 138

Collection Date/Time: 06/08/2021 13:15

Field ID: 21030086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2253926	EPA 8276	Chlordane	5.1	U	ng/L	P399348	
		Toxaphene	31	U	ng/L	P399348	

Sample Location: TRAIL SPRINGS (spring vent)

Collection Date/Time: 06/08/2021 12:30

Field ID: 22051007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2253916	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P399458	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P399824	
		Sulfate	31		mg SO4/L	P399826	
		Color (true)	6.2		PCU	P399461	
	SM 2320 B-2011	Total Alkalinity	168		mg CaCO3/L	P399964	
	SM 2540 C-2011	TDS	255		mg/L	P399793	
	SM 2540 D-2011	TSS	2	I	mg/L	P399681	
	SM 4500 F-C-2011	Fluoride	0.076	I	mg F/L	P399738	
2253917	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P400174	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P399712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	7.0		mg N/L	P399558	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P400122	
	SM 5310 B-2011	Organic Carbon	1.5		mg C/L	P399772	
2253918	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P399453	
2253925	EPA 8276	Chlordane	5.1	U	ng/L	P399348	
		Toxaphene	31	U	ng/L	P399348	
2253928	EPA 200.7 Rev. 4.4	Barium	8.2		ug/L	P399514	
		Calcium	79.8		mg/L	P399514	
		Iron	30	U	ug/L	P399514	
		Magnesium	7.60		mg/L	P399514	
		Manganese	3.2	I	ug/L	P399514	
		Potassium	7.7		mg/L	P399514	
		Sodium	7.2		mg/L	P399514	
		Zinc	5.0	U	ug/L	P399514	
		Aluminum	22		ug/L	P399514	
		Antimony	0.054	I	ug/L	P399514	
		Arsenic	0.56		ug/L	P399514	
		Beryllium	0.010	U	ug/L	P399514	
		Boron**	21.3		ug/L	P399514	
		Cadmium	0.067	I	ug/L	P399514	
	EPA 200.8 Rev. 5.4	Chromium	0.42	I	ug/L	P399514	
		Copper	0.40	U	ug/L	P399514	
		Lead	0.20	U	ug/L	P399514	
		Nickel	0.50	U	ug/L	P399514	
		Selenium	0.72	I	ug/L	P399514	
		Silver	0.010	U	ug/L	P399514	
		Thallium	0.13	I	ug/L	P399514	
		Hardness	231		mg/L	P399514	
	SM 2340B						

Sample Location: TWIN SPRING at vent

Collection Date/Time: 06/08/2021 14:35

Field ID: G1NE0943

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2253919	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P399458	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P399824	
		Sulfate	12		mg SO4/L	P399826	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P399461	
	SM 2320 B-2011	Total Alkalinity	145	QJ	mg CaCO3/L	P400074	LCS
	SM 2540 C-2011	TDS	172		mg/L	P399793	
	SM 2540 D-2011	TSS	2	U	mg/L	P399681	
	SM 4500 F-C-2011	Fluoride	0.069	I	mg F/L	P399738	
2253920	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P399945	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P399712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.0		mg N/L	P399558	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P400122	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P399772	
2253921	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P399453	
2253927	EPA 8321B	2,4-D	0.0020	U	ug/L	P399432	
		Acesulfame K	0.10	U	ug/L	P399425	
		2,4,5-T	0.0040	U	ug/L	P399432	
		AMPA	0.10	U	ug/L	P399425	
		Acetaminophen	0.0080	U	ug/L	P399432	
		Acetamiprid	0.0020	U	ug/L	P399432	
		Endothall	0.25	U	ug/L	P399425	
		Glufosinate	0.10	U	ug/L	P399425	
		Glyphosate	0.10	U	ug/L	P399425	
		Afidopyropen	0.0020	U	ug/L	P399432	
		Sucralose	0.019	I	ug/L	P399425	
		Bentazon	8.0E-04	U	ug/L	P399432	MS
		Benzovindiflupyr	0.0020	U	ug/L	P399432	
		Carbamazepine	8.0E-04	U	ug/L	P399432	
		Clothianidin	0.0020	U	ug/L	P399432	
		Dinotefuran	0.0020	U	ug/L	P399432	
		Diuron	0.0020	U	ug/L	P399432	
		Fenuron	0.016	U	ug/L	P399432	
		Fluridone	8.0E-04	U	ug/L	P399432	
		Imazapyr	0.0040	U	ug/L	P399432	
		Hydrocodone	0.0020	U	ug/L	P399432	
		Ibuprofen	0.020	U	ug/L	P399432	
		Imidacloprid	0.0020	U	ug/L	P399432	MS
		Linuron	0.0040	U	ug/L	P399432	
		Mandestrobin	0.0020	U	ug/L	P399432	
		MCP	0.0020	U	ug/L	P399432	MS
		Naproxen	0.0080	U	ug/L	P399432	
		Primidone	0.0040	U	ug/L	P399432	
		Pyraclostrobin	0.0020	U	ug/L	P399432	

Field ID: G1NE0943

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2253927	EPA 8321B	Thiamethoxam	0.0020	U	ug/L	P399432	
		Tolfenpyrad	0.0020	U	ug/L	P399432	
		Triclopyr	0.0040	U	ug/L	P399432	

Ref. Method and Comment:

SM 2320 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample reanalyzed out of holding time because of analytical difficulties. Refer to the Lab Analysis Report for an explanation of QC Codes.

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P399458

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P399514

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P399514

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399824

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399826

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399945

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400174

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399712

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399558

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400122

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399453

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

Reference Method: EPA 8276
Batch ID: P399348

Component	Result	Code	Units
Chlordane	5.0	U	ng/L
Toxaphene	30	U	ng/L

Reference Method: EPA 8321B
Batch ID: P399425

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P399432

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P399432

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

Reference Method: SM 2120 B-2011

Batch ID: P399461

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P399964

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

Reference Method: SM 2320 B-2011

Batch ID: P400074

Component	Result	Code	Units
Total Alkalinity	0.73	I	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011

Batch ID: P399793

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P399681

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P399738

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P399772

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: P399514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	99.5		P	85 - 115
Calcium	106		P	85 - 115
Iron	109		P	85 - 115
Magnesium	110		P	85 - 115
Manganese	101		P	85 - 115
Potassium	104		P	85 - 115
Sodium	112		P	85 - 115
Zinc	91.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P399514

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	104		P	85 - 115
Beryllium	95.7		P	85 - 115
Boron	104		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	100		P	85 - 115
Copper	103		P	85 - 115
Lead	113		P	85 - 115
Nickel	102		P	85 - 115
Selenium	105		P	85 - 115
Silver	102		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399945

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400174

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399558

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400122

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399453

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

Reference Method: EPA 8276
Batch ID: P399348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlordane	90.4	89.9	P/P	56 - 117
Toxaphene	106	107	P/P	45 - 116

Reference Method: EPA 8321B
Batch ID: P399425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	83.0		P	40 - 150
AMPA	96.0		P	40 - 150
Endothall	108		P	40 - 150
Glufosinate	110		P	40 - 150
Glyphosate	112		P	40 - 150
Sucralose	93.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P399432

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	103		P	30 - 160
2,4,5-T	113		P	30 - 160
Acetaminophen	68.3		P	30 - 150
Acetamiprid	86.9		P	30 - 160
Afidopyropen	78.1		P	30 - 160
Bentazon	37.6		P	30 - 150
Benzovindiflupyr	82.5		P	30 - 160
Carbamazepine	81.4		P	30 - 160
Clothianidin	94.3		P	30 - 160
Dinotefuran	78.2		P	30 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P399432

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	84.2		P	30 - 160
Fenuron	98.5		P	30 - 160
Fluridone	82.0		P	30 - 160
Hydrocodone	91.0		P	30 - 160
Ibuprofen	71.9		P	30 - 160
Imazapyr	92.8		P	30 - 160
Imidacloprid	87.0		P	30 - 160
Linuron	73.1		P	30 - 160
Mandestrobin	93.7		P	30 - 160
MCPP	140		P	30 - 160
Naproxen	96.6		P	30 - 160
Primidone	90.4		P	30 - 160
Pyraclostrobin	71.7		P	30 - 160
Thiamethoxam	85.2		P	30 - 160
Tolfenpyrad	56.8		P	30 - 160
Triclopyr	113		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P399461

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P399964

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

Reference Method: SM 2320 B-2011
Batch ID: P400074

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

Reference Method: SM 4500 F-C-2011
Batch ID: P399738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P399772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P399514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253352	Barium	103	101	P/P	80 - 120
2253352	Calcium	107	104	P/P	80 - 120
2253352	Iron	111	109	P/P	80 - 120
2253352	Magnesium	112	110	P/P	80 - 120
2253352	Manganese	104	102	P/P	80 - 120
2253352	Potassium	102	98.9	P/P	80 - 120
2253352	Sodium	106	103	P/P	80 - 120
2253352	Zinc	94.9	93.6	P/P	80 - 120
2254166	Barium	102		P	80 - 120
2254166	Calcium	107		P	80 - 120
2254166	Iron	109		P	80 - 120
2254166	Magnesium	110		P	80 - 120
2254166	Manganese	104		P	80 - 120
2254166	Potassium	108		P	80 - 120
2254166	Sodium	106		P	80 - 120
2254166	Zinc	95.4		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P399514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253352	Aluminum	106	105	P/P	80 - 120
2253352	Antimony	103	102	P/P	80 - 120
2253352	Arsenic	105	106	P/P	80 - 120
2253352	Beryllium	98.8	97.9	P/P	80 - 120
2253352	Boron	110	108	P/P	80 - 120
2253352	Cadmium	108	109	P/P	80 - 120
2253352	Chromium	105	106	P/P	80 - 120
2253352	Copper	104	106	P/P	80 - 120
2253352	Lead	112	113	P/P	80 - 120
2253352	Nickel	104	105	P/P	80 - 120
2253352	Selenium	105	105	P/P	80 - 120
2253352	Silver	102	102	P/P	80 - 120
2253352	Thallium	103	104	P/P	80 - 120
2254166	Aluminum	103		P	80 - 120
2254166	Antimony	101		P	80 - 120
2254166	Arsenic	103		P	80 - 120
2254166	Beryllium	97.3		P	80 - 120
2254166	Boron	109		P	80 - 120
2254166	Cadmium	107		P	80 - 120
2254166	Chromium	102		P	80 - 120
2254166	Copper	102		P	80 - 120
2254166	Lead	112		P	80 - 120
2254166	Nickel	101		P	80 - 120
2254166	Selenium	102		P	80 - 120
2254166	Silver	99.5		P	80 - 120
2254166	Thallium	103		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P399824

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253848	Chloride	93.9		P	90 - 110
2254122	Chloride	95.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P399826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253848	Sulfate	95.5		P	90 - 110
2254122	Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253920	Ammonia-N	97.2	97.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P400174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253917	Ammonia-N	97.6	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253917	Kjeldahl Nitrogen	91.9	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253846	NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P400122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253892	Total-P	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253856	O-Phosphate-P	99.6	99.2	P/P	90 - 110

Reference Method: EPA 8276
Batch ID: P399348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253925	Chlordane	93.2	101	P/P	47 - 128
2253925	Toxaphene	107	94.8	P/P	11 - 163

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P399425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253793	Acesulfame K	115	114	P/P	40 - 150
2253793	AMPA	79.8	83.5	P/P	40 - 150
2253793	Endothall	58.6	70.1	P/P	40 - 150
2253793	Glufosinate	115	119	P/P	40 - 150
2253793	Glyphosate	102	102	P/P	40 - 150
2253793	Sucralose	100	111	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P399432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253793	2,4-D	146	152	P/P	30 - 160
2253793	2,4,5-T	126	151	P/P	30 - 160
2253793	Acetaminophen	74.7	78.0	P/P	30 - 150
2253793	Acetamiprid	83.9	72.6	P/P	30 - 160
2253793	Afidopyropen	82.5	77.0	P/P	30 - 160
2253793	Bentazon	22.2	28.3	F/F	30 - 150
2253793	Benzovindiflupyr	90.7	101	P/P	30 - 160
2253793	Carbamazepine	85.0	88.7	P/P	30 - 160
2253793	Clothianidin	102	107	P/P	30 - 160
2253793	Dinotefuran	96.0	95.3	P/P	30 - 160
2253793	Diuron	80.8	78.9	P/P	30 - 160
2253793	Fenuron	82.3	87.4	P/P	30 - 160
2253793	Fluridone	79.2	86.4	P/P	30 - 160
2253793	Hydrocodone	82.1	88.9	P/P	30 - 160
2253793	Ibuprofen	95.8	90.3	P/P	30 - 160
2253793	Imidacloprid	163	179	F/F	30 - 160
2253793	Linuron	75.5	80.9	P/P	30 - 160
2253793	Mandestrobin	100	110	P/P	30 - 160
2253793	MCP	188	217	F/F	30 - 160
2253793	Naproxen	110	124	P/P	30 - 160
2253793	Primidone	97.5	97.5	P/P	30 - 160
2253793	Pyraclostrobin	75.2	84.4	P/P	30 - 160
2253793	Thiamethoxam	112	116	P/P	30 - 160
2253793	Tolfenpyrad	68.5	79.8	P/P	30 - 160
2253793	Triclopyr	147	156	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P399738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253919	Fluoride	99.0	99.6	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P399772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2253746	Organic Carbon	100		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P399458

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253748	Turbidity	2.69	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P399514

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253352	Barium	2.35	Spike	P	0 - 20
2253352	Calcium	1.20	Spike	P	0 - 20
2253352	Iron	1.80	Spike	P	0 - 20
2253352	Magnesium	1.79	Spike	P	0 - 20
2253352	Manganese	2.19	Spike	P	0 - 20
2253352	Potassium	2.70	Spike	P	0 - 20
2253352	Sodium	2.18	Spike	P	0 - 20
2253352	Zinc	1.39	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P399514

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253352	Aluminum	1.12	Spike	P	0 - 20
2253352	Antimony	0.703	Spike	P	0 - 20
2253352	Arsenic	0.271	Spike	P	0 - 20
2253352	Beryllium	0.863	Spike	P	0 - 20
2253352	Boron	1.44	Spike	P	0 - 20
2253352	Cadmium	0.365	Spike	P	0 - 20
2253352	Chromium	0.412	Spike	P	0 - 20
2253352	Copper	1.25	Spike	P	0 - 20
2253352	Lead	0.456	Spike	P	0 - 20
2253352	Nickel	1.11	Spike	P	0 - 20
2253352	Selenium	0.328	Spike	P	0 - 20
2253352	Silver	0.522	Spike	P	0 - 20
2253352	Thallium	1.24	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P399824

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253848	Chloride	1.86	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P399826

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253848	Sulfate	2.11	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P399945

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253920	Ammonia-N	0.190	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P400174

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253917	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P399712

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253917	Kjeldahl Nitrogen	5.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P399558

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253846	NO2NO3-N	0.238	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P400122

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253892	Total-P	0.596	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P399453

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253856	O-Phosphate-P	0.330	Spike	P	0 - 20

Reference Method: EPA 8276

Batch ID: P399348

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253925	Chlordane	7.63	Spike	P	0 - 30
2253925	Toxaphene	12.4	Spike	P	0 - 30
LFB	Chlordane	0.548	LCS	P	0 - 30
LFB	Toxaphene	0.642	LCS	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P399425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253793	Acesulfame K	1.01	Spike	P	0 - 30
2253793	AMPA	4.30	Spike	P	0 - 30
2253793	Endothall	17.9	Spike	P	0 - 30
2253793	Glufosinate	2.93	Spike	P	0 - 30
2253793	Glyphosate	0.200	Spike	P	0 - 30
2253793	Sucralose	10.3	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P399432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253793	2,4-D	3.09	Spike	P	0 - 30
2253793	2,4,5-T	18.3	Spike	P	0 - 30
2253793	Acetaminophen	4.36	Spike	P	0 - 30
2253793	Acetamiprid	14.4	Spike	P	0 - 30
2253793	Afidopyropen	6.86	Spike	P	0 - 30
2253793	Bentazon	10.1	Spike	P	0 - 30
2253793	Benzovindiflupyr	10.9	Spike	P	0 - 30
2253793	Carbamazepine	4.28	Spike	P	0 - 30
2253793	Clothianidin	4.04	Spike	P	0 - 30
2253793	Dinotefuran	0.774	Spike	P	0 - 30
2253793	Diuron	2.40	Spike	P	0 - 30
2253793	Fenuron	6.07	Spike	P	0 - 30
2253793	Fluridone	7.13	Spike	P	0 - 30
2253793	Hydrocodone	8.02	Spike	P	0 - 30
2253793	Ibuprofen	5.90	Spike	P	0 - 30
2253793	Imazapyr	4.16	Spike	P	0 - 30
2253793	Imidacloprid	9.06	Spike	P	0 - 30
2253793	Linuron	6.92	Spike	P	0 - 30
2253793	Mandestrobin	9.38	Spike	P	0 - 30
2253793	MCPP	14.3	Spike	P	0 - 30
2253793	Naproxen	12.6	Spike	P	0 - 30
2253793	Primidone	0.0615	Spike	P	0 - 30
2253793	Pyraclostrobin	11.5	Spike	P	0 - 30
2253793	Thiamethoxam	3.82	Spike	P	0 - 30
2253793	Tolfenpyrad	15.3	Spike	P	0 - 30
2253793	Triclopyr	5.90	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P399461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253848	Color (true)	1.64	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P399964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P399964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254812	Total Alkalinity	0.966	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P399793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253748	TDS	3.92	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P399681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253845	TSS	7.27	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P399738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253919	Fluoride	0.479	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P399772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2253746	Organic Carbon	0.589	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2253925
Field Sample ID: 22051007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	71.6	P	29 - 92.0
EPA 8276	PCNB	78.5	P	43 - 134

Lab Sample ID: 2253926
Field Sample ID: 21030086

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8276	Decachlorobiphenyl	65.0	P	29 - 92.0
EPA 8276	PCNB	76.1	P	43 - 134

Lab Sample ID: 2253927
Field Sample ID: G1NE0943

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	137	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	93.7	P	30 - 160
EPA 8321B	Diuron-d6	88.5	P	30 - 160
EPA 8321B	Endothall-d6	98.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	106	P	30 - 160
EPA 8321B	Ibuprofen-d3	80.0	P	30 - 160
EPA 8321B	Primidone-d5	86.8	P	30 - 160
EPA 8321B	Sucralose-d6	102	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A105970

Included Lab Sample IDs: 2253918, 2253921

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A105972

Included Lab Sample IDs: 2253916, 2253919

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: A105973

Included Lab Sample IDs: 2253916, 2253919

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

Reference Method: EPA 8321B

Run ID: A106009

Included Lab Sample IDs: 2253927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	92.3	100	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A106011

Included Lab Sample IDs: 2253927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	78.7	80.7	P/P	60 - 160
Endothall	105	109	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A106015

Included Lab Sample IDs: 2253927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	92.2	104	P/P	60 - 160
Glufosinate	101	112	P/P	60 - 160
Glyphosate	103	126	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106016

Included Lab Sample IDs: 2253917, 2253920

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8276

Run ID: A106035

Included Lab Sample IDs: 2253925, 2253926

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chlordane	96.0		P	80 - 120
Chlordane	99.9		P	80 - 120
Toxaphene	105		P	80 - 120
Toxaphene	80.4		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A106050

Included Lab Sample IDs: 2253928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	106	105	P/P	90 - 110
Calcium	100	99.7	P/P	90 - 110
Iron	104	104	P/P	90 - 110
Magnesium	104	104	P/P	90 - 110
Manganese	107	107	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	99.9	100	P/P	90 - 110
Zinc	96.6	92.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106087

Included Lab Sample IDs: 2253916, 2253919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	P/P	90 - 110
Fluoride	101	103	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A106104

Included Lab Sample IDs: 2253917, 2253920

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A106105

Included Lab Sample IDs: 2253916, 2253919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	99.8	P/P	90 - 110
Sulfate	99.0	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106117

Included Lab Sample IDs: 2253917, 2253920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A106130

Included Lab Sample IDs: 2253928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	105	103	P/P	90 - 110
Arsenic	103	102	P/P	90 - 110
Beryllium	101	99.9	P/P	90 - 110
Boron	105	105	P/P	90 - 110
Cadmium	103	103	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Copper	99.4	97.2	P/P	90 - 110
Nickel	100	98.2	P/P	90 - 110
Selenium	105	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106175

Included Lab Sample IDs: 2253920

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.5	97.6	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106182

Included Lab Sample IDs: 2253916

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	96.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A106199

Included Lab Sample IDs: 2253927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.6	93.6	P/P	50 - 150
2,4,5-T	100	95.9	P/P	50 - 150
Acetaminophen	85.4	78.4	P/P	60 - 160
Acetamiprid	105	98.2	P/P	50 - 150
Afidopyropen	119	107	P/P	50 - 150
Bentazon	91.2	81.6	P/P	50 - 160
Benzovindiflupyr	101	93.9	P/P	50 - 160
Carbamazepine	111	106	P/P	60 - 150
Clothianidin	114	88.1	P/P	60 - 150
Dinotefuran	92.6	89.5	P/P	50 - 150
Diuron	98.4	109	P/P	60 - 160
Fenuron	107	98.1	P/P	60 - 150
Fluridone	127	114	P/P	60 - 160
Hydrocodone	110	102	P/P	60 - 150
Ibuprofen	83.0	79.5	P/P	50 - 160
Imazapyr	100	61.0	P/P	50 - 150
Imidacloprid	90.4	91.6	P/P	60 - 150
Linuron	124	102	P/P	60 - 150
Mandestrobin	116	108	P/P	50 - 150
MCPP	106	99.4	P/P	50 - 150
Naproxen	119	99.2	P/P	50 - 160
Primidone	83.2	103	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A106199
 Included Lab Sample IDs: 2253927

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	86.6	89.4	P/P	60 - 150
Thiamethoxam	97.5	71.6	P/P	50 - 150
Tolfenpyrad	118	110	P/P	60 - 150
Triclopyr	103	93.9	P/P	50 - 150

Reference Method: SM 2320 B-2011
 Run ID: A106227
 Included Lab Sample IDs: 2253919

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A106241
 Included Lab Sample IDs: 2253928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	100	100	P/P	90 - 110
Lead	108	109	P/P	90 - 110
Silver	99.5	98.9	P/P	90 - 110
Thallium	95.3	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A106255
 Included Lab Sample IDs: 2253917

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

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A106257
 Included Lab Sample IDs: 2253920

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A106261
 Included Lab Sample IDs: 2253917

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	98.5	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity							2.69	
EPA 200.7 Rev. 4.4	Barium	99.5		103	101	102			2.35
	Calcium	106		107	104	107			1.20
	Iron	109		111	109	109			1.80
	Magnesium	110		112	110	110			1.79
	Manganese	101		104	102	104			2.19
	Potassium	104		102	98.9	108			2.70
	Sodium	112		106	103	106			2.18
	Zinc	91.8		94.9	93.6	95.4			1.39
EPA 200.8 Rev. 5.4	Aluminum	103		106	105	103			1.12
	Antimony	102		103	102	101			0.703
	Arsenic	104		105	106	103			0.271
	Beryllium	95.7		98.8	97.9	97.3			0.863
	Boron	104		110	108	109			1.44
	Cadmium	104		108	109	107			0.365
	Chromium	100		105	106	102			0.412
	Copper	103		104	106	102			1.25
	Lead	113		112	113	112			0.456
	Nickel	102		104	105	101			1.11
	Selenium	105		105	105	102			0.328
	Silver	102		102	102	99.5			0.522
	Thallium	103		103	104	103			1.24
EPA 300.0 Rev. 2.1	Chloride	98.6		93.9	95.7			1.86	
	Sulfate	97.7		95.5	94.3			2.11	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6		97.2	97.0				0.190
	Ammonia-N	96.0		97.6	97.6				0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3		91.9	98.2				5.32
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102		98.0					0.238
EPA 365.1 Rev. 2.0	Total-P	99.6		101	100				0.596
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8		99.6	99.2				0.330
EPA 8276	Chlordane	90.4	89.9	93.2	101		0.548		7.63
	Toxaphene	106	107	107	94.8		0.642		12.4
EPA 8321B	2,4-D	103		146	152				3.09
	2,4,5-T	113		126	151				18.3
	Acesulfame K	83.0		115	114				1.01
	Acetaminophen	68.3		78.0	74.7				4.36
	Acetamiprid	86.9		83.9	72.6				14.4
	Afidopyropen	78.1		82.5	77.0				6.86
	AMPA	96.0		79.8	83.5				4.30
	Bentazon	37.6		22.2	28.3				10.1
	Benzovindiflupyr	82.5		90.7	101				10.9
	Carbamazepine	81.4		85.0	88.7				4.28
	Clothianidin	94.3		102	107				4.04
	Dinotefuran	78.2		96.0	95.3				0.774
	Diuron	84.2		80.8	78.9				2.40
	Endothall	108		58.6	70.1				17.9
	Fenuron	98.5		82.3	87.4				6.07
	Fluridone	82.0		79.2	86.4				7.13
	Glufosinate	110		115	119				2.93
	Glyphosate	112		102	102				0.200
	Hydrocodone	91.0		82.1	88.9				8.02
	Ibuprofen	71.9		95.8	90.3				5.90
	Imazapyr	92.8							4.16
	Imidacloprid	87.0		163	179				9.06

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Linuron	73.1	75.5	80.9		6.92
	Mandestrobin	93.7	100	110		9.38
	MCCP	140	188	217		14.3
	Naproxen	96.6	110	124		12.6
	Primidone	90.4	97.5	97.5		0.0615
	Pyraclostrobin	71.7	75.2	84.4		11.5
	Sucralose	93.2	100	111		10.3
	Thiamethoxam	85.2	112	116		3.82
	Tolfenpyrad	56.8	68.5	79.8		15.3
	Triclopyr	113	147	156		5.90
SM 2120 B-2011	Color (true)	99.3			1.64	
SM 2320 B-2011	Total Alkalinity	102			0.966	
	Total Alkalinity	106				
SM 2540 C-2011	TDS				3.92	
SM 2540 D-2011	TSS				7.27	
SM 4500 F-C-2011	Fluoride	97.0	99.0	99.6		0.479
SM 5310 B-2011	Organic Carbon	93.7	100			0.589

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2253916, 2253919
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2253928
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2253928
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2253916, 2253919
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2253916, 2253919
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2253917, 2253920
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2253917, 2253920
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2253917, 2253920
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2253917, 2253920
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2253918, 2253921
EPA 8276	Organochlorine pesticides in water matrices by GC/MS with Negative Chemical Ionization	2253925, 2253926
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2253927
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2253916, 2253919
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2253916, 2253919
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2253928
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2253916, 2253919
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2253916, 2253919
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2253916, 2253919
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2253917, 2253920

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	06/09/2021			06/09/2021 16:23	Yen Ta	2253916, 2253919
EPA 200.7 Rev. 4.4	06/09/2021	06/10/2021 15:00	Elliott D. Healy	06/14/2021 22:01	Josef B Mick	2253928
EPA 200.8 Rev. 5.4	06/09/2021	06/10/2021 15:00	Elliott D. Healy	06/16/2021 20:17	McKinley C Carter	2253928
	06/09/2021	06/10/2021 15:00	Elliott D. Healy	06/23/2021 21:40	Alexander Thompson	2253928
EPA 300.0 Rev. 2.1	06/09/2021			06/16/2021 18:31	Lipi Saha	2253916
	06/09/2021			06/16/2021 18:43	Lipi Saha	2253919
EPA 350.1 Rev. 2.0	06/09/2021			06/18/2021 14:22	Roberta Tatti	2253920
	06/09/2021			06/24/2021 12:18	Roberta Tatti	2253917
EPA 351.2 Rev. 2.0	06/09/2021	06/15/2021 14:13	Benjamin T. Nordmann	06/16/2021 13:20	Virginia P. Brown	2253917
	06/09/2021	06/15/2021 14:13	Benjamin T. Nordmann	06/16/2021 13:25	Virginia P. Brown	2253920
EPA 353.2 Rev. 2.0	06/09/2021			06/11/2021 12:06	Beverly Y. Sanders	2253917
	06/09/2021			06/11/2021 12:07	Beverly Y. Sanders	2253920
EPA 365.1 Rev. 2.0	06/09/2021	06/23/2021 13:50	Shengyu Ding	06/24/2021 11:58	Shengyu Ding	2253917
	06/09/2021	06/23/2021 13:50	Shengyu Ding	06/24/2021 13:18	Shengyu Ding	2253920
EPA 365.1 Rev. 2.0 dissolved	06/09/2021			06/09/2021 15:18	Blanca Fach	2253918
	06/09/2021			06/09/2021 15:19	Blanca Fach	2253921
EPA 8276	06/09/2021	06/10/2021 08:00	Fe-Val Siddell	06/12/2021 05:53	Chiran X. Ghimire	2253925
	06/09/2021	06/10/2021 08:00	Fe-Val Siddell	06/12/2021 13:16	Chiran X. Ghimire	2253926
EPA 8321B	06/09/2021	06/10/2021 13:00	Juyoung Kim	06/10/2021 18:24	Juyoung Kim	2253927
	06/09/2021	06/10/2021 13:00	Juyoung Kim	06/10/2021 19:07	Juyoung Kim	2253927
	06/09/2021	06/10/2021 13:00	Juyoung Kim	06/11/2021 07:34	Juyoung Kim	2253927
	06/09/2021	06/14/2021 09:00	Hoor Shaik	06/20/2021 23:56	Juyoung Kim	2253927
SM 2120 B-2011	06/09/2021			06/09/2021 15:43	Sarah A Nixon	2253916
	06/09/2021			06/09/2021 15:44	Sarah A Nixon	2253919
SM 2320 B-2011	06/09/2021			06/19/2021 05:25	Dale L. Simmons	2253916
	06/09/2021			06/22/2021 17:42	Patrick M. Roche	2253919
SM 2340B	06/09/2021			06/14/2021 22:01	Josef B Mick	2253928
SM 2540 C-2011	06/09/2021			06/11/2021 15:27	Yijie Li	2253916, 2253919
SM 2540 D-2011	06/09/2021			06/11/2021 15:27	Yijie Li	2253916, 2253919
SM 4500 F-C-2011	06/09/2021			06/15/2021 15:16	Dale L. Simmons	2253919
	06/09/2021			06/15/2021 17:03	Dale L. Simmons	2253916
SM 5310 B-2011	06/09/2021			06/16/2021 04:56	Touraj Touran	2253917
	06/09/2021			06/16/2021 05:07	Touraj Touran	2253920