

Chemical Analysis Report

SO-DIST-2023-10-20-02

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **2023 SMP : Land O' Lakes**
Request ID: **RQ-2023-09-04-42**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
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Certified by: Chris Bowen, Environmental Administrator

Date Certified: 08-NOV-2023 11:14



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: Bonnet creek at SR 64

Collection Date/Time: 10/19/2023 10:15

Field ID: G4SD0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2446368	DEP SOP: NU-094-1	Color (true)	320		PCU	P436827	
	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P436830	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P437219	
		Sulfate	12		mg SO4/L	P437222	
	SM 2320 B-2011	Total Alkalinity	12		mg CaCO3/L	P436883	
	SM 2540 C-2015	TDS	151		mg/L	P437261	
	SM 2540 D-2015	TSS	11		mg/L	P437212	
2446369	SM 4500-F- C-2011	Fluoride	0.075	I	mg F/L	P436885	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P436919	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P436867	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.078		mg N/L	P437072	
	EPA 365.1 Rev. 2.0	Total-P	0.40		mg P/L	P436841	
2446395	SM 5310 B-2011	Organic Carbon	31		mg C/L	P437110	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P436890	
		Acesulfame K	0.10	U	ug/L	P436712	
		2,4,5-T	0.0040	U	ug/L	P436890	
		AMPA	0.10	U	ug/L	P436712	
		Acetaminophen	0.0080	U	ug/L	P436890	
		Acetamiprid	0.0020	U	ug/L	P436890	
		Endothall	0.25	U	ug/L	P436712	
		Glufosinate	0.10	U	ug/L	P436712	
		Glyphosate	0.10	U	ug/L	P436712	
		Afidopyropen	0.0020	U	ug/L	P436890	
		Bentazon	0.039		ug/L	P436890	
		Sucralose	0.035	I	ug/L	P436712	
		Benzovindiflupyr	0.0020	U	ug/L	P436890	
		Carbamazepine	8.0E-04	U	ug/L	P436890	
		Clothianidin	0.0050	I	ug/L	P436890	
		Dinotefuran	0.0020	U	ug/L	P436890	
		Diuron	0.0020	U	ug/L	P436890	
		Fenuron	0.032	U	ug/L	P436890	MS
		Fluridone	8.0E-04	U	ug/L	P436890	
		Imazapyr	0.0040	U	ug/L	P436890	
		Hydrocodone	0.0020	U	ug/L	P436890	
		Ibuprofen	0.080	U	ug/L	P436890	
		Imidacloprid	0.010		ug/L	P436890	
		Linuron	0.0040	U	ug/L	P436890	
		Mandestrobin	0.0020	U	ug/L	P436890	
		MCP	0.0020	U	ug/L	P436890	
		Naproxen	0.0080	U	ug/L	P436890	
		Primidone	0.0040	U	ug/L	P436890	
		Pyraclostrobin	0.0020	U	ug/L	P436890	
		Silvex	0.0040	U	ug/L	P436890	
		Thiamethoxam	0.043		ug/L	P436890	

Field ID: G4SD0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2446395	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P436890	
		Triclopyr	0.0040	U	ug/L	P436890	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake Glenada

Collection Date/Time: 10/19/2023 10:50

Field ID: G4SD0179

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2446360	DEP SOP: NU-094-1	Color (true)	38		PCU	P436826	
	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P436830	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P437219	
		Sulfate	16		mg SO4/L	P437222	
	SM 2320 B-2011	Total Alkalinity	32		mg CaCO3/L	P436883	
	SM 2540 C-2015	TDS	126		mg/L	P437261	
	SM 2540 D-2015	TSS	8	I	mg/L	P437212	
	SM 4500-F- C-2011	Fluoride	0.077	I	mg F/L	P436885	
2446362	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P436918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P436866	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P437011	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P436840	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P437014	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Red Water Lake at Mid

Collection Date/Time: 10/19/2023 12:10

Field ID: G4SD0224

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2446364	DEP SOP: NU-094-1	Color (true)	29		PCU	P436826	
	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P436830	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P437219	
		Sulfate	29		mg SO4/L	P437222	
	SM 2320 B-2011	Total Alkalinity	21		mg CaCO3/L	P436883	
	SM 2540 C-2015	TDS	114		mg/L	P437261	
	SM 2540 D-2015	TSS	6	I	mg/L	P437212	
	SM 4500-F- C-2011	Fluoride	0.050	I	mg F/L	P436885	
2446365	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P436918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P436866	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P437011	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P436840	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P437110	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: LAKEPLACIDOUTLETATSR70W

Collection Date/Time: 10/19/2023 13:40

Field ID: G4SD0213

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2446366	DEP SOP: NU-094-1	Color (true)	450		PCU	P436826	
	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P436830	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P437219	
		Sulfate	15		mg SO4/L	P437222	
	SM 2320 B-2011	Total Alkalinity	4.0		mg CaCO3/L	P436883	
	SM 2540 C-2015	TDS	152		mg/L	P437261	
	SM 2540 D-2015	TSS	3	I	mg/L	P437212	
2446367	SM 4500-F- C-2011	Fluoride	0.071	I	mg F/L	P436885	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P436918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P436866	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P437072	
	EPA 365.1 Rev. 2.0	Total-P	0.97		mg P/L	P436841	
2446397	SM 5310 B-2011	Organic Carbon	37		mg C/L	P437110	
	EPA 200.7 Rev. 4.4	Calcium	7.90		mg/L	P437091	
		Iron	170		ug/L	P437091	
		Magnesium	4.31		mg/L	P437091	
		Potassium	9.3		mg/L	P437091	
		Sodium	4.5		mg/L	P437091	
		Strontium	324		ug/L	P437091	
		Tin	3.0	U	ug/L	P437091	
		Titanium	7.0		ug/L	P437091	
		Vanadium	2.0	U	ug/L	P437091	
		Zinc	5.0	U	ug/L	P437091	
	EPA 200.8 Rev. 5.4	Aluminum	375		ug/L	P437091	
		Antimony	0.055	I	ug/L	P437091	
		Arsenic	0.57		ug/L	P437091	
		Barium	3.06		ug/L	P437091	
		Beryllium	0.016	I	ug/L	P437091	
		Boron	36.5		ug/L	P437091	
		Cadmium	0.020	U	ug/L	P437091	
		Chromium	0.55	I	ug/L	P437091	
		Cobalt	0.142		ug/L	P437091	
		Copper	0.66	I	ug/L	P437091	
		Lead	0.20	U	ug/L	P437091	
		Manganese	6.72		ug/L	P437091	
		Molybdenum	0.36	I	ug/L	P437091	
		Nickel	0.54	I	ug/L	P437091	
		Selenium	0.38	I	ug/L	P437091	
		Silver	0.010	U	ug/L	P437091	
		Thallium	0.10	U	ug/L	P437091	
	SM 2340 B-2011	Hardness	37.5		mg/L	P437091	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Lake June in Winter

Collection Date/Time: 10/19/2023 13:00

Field ID: G4SD0186

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2446361	DEP SOP: NU-094-1	Color (true)	15		PCU	P436826	
	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P436830	
	EPA 300.0 Rev. 2.1	Chloride	19	A	mg Cl/L	P437219	
		Sulfate	26	A	mg SO4/L	P437222	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P436883	
	SM 2540 C-2015	TDS	99		mg/L	P437261	
	SM 2540 D-2015	TSS	4	I	mg/L	P437212	
	SM 4500-F- C-2011	Fluoride	0.060	I	mg F/L	P436885	
2446363	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P436918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P436866	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P437011	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P436840	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P437014	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P436826

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P436827

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436830

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437091

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Barium	0.20	U	ug/L
Beryllium	0.010	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Cobalt	0.020	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Manganese	0.10	U	ug/L
Molybdenum	0.15	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437219

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437222

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436918

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436919

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436866

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436867

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437011

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437072

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436840

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436841

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

Reference Method: EPA 8321B
Batch ID: P436712

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: P436890

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.032	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.080	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
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-2011
Batch ID: P436883

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2015
Batch ID: P437261

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015
Batch ID: P437212

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P436885

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P437014

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-2011
Batch ID: P437110

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P436826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P436827

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436830

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	112		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	103		P	85 - 115
Sodium	107		P	85 - 115
Strontium	99.9		P	85 - 115
Tin	98.7		P	85 - 115
Titanium	102		P	85 - 115
Vanadium	101		P	85 - 115
Zinc	98.2		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.3		P	85 - 115
Antimony	97.3		P	85 - 115
Arsenic	97.1		P	85 - 115
Barium	101		P	85 - 115
Beryllium	93.8		P	85 - 115
Boron	102		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	98.9		P	85 - 115
Cobalt	95.2		P	85 - 115
Copper	93.9		P	85 - 115
Lead	91.9		P	85 - 115
Manganese	98.8		P	85 - 115
Molybdenum	96.9		P	85 - 115
Nickel	93.6		P	85 - 115
Selenium	99.2		P	85 - 115
Silver	105		P	85 - 115
Thallium	96.1		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437219

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437222

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436918

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436919

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436866

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437011

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	92.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437072

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436840

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P436841

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

Reference Method: EPA 8321B

Batch ID: P436712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	84.6		P	40 - 150
AMPA	88.4		P	40 - 160
Endothall	93.9		P	40 - 160
Glufosinate	96.5		P	40 - 160
Glyphosate	99.0		P	40 - 160
Sucralose	90.8		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P436890

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	77.0		P	40 - 150
2,4,5-T	76.0		P	40 - 150
Acetaminophen	94.0		P	30 - 150
Acetamiprid	85.3		P	40 - 150
Afidopyropen	79.7		P	30 - 150
Bentazon	92.2		P	30 - 150
Benzovindiflupyr	82.5		P	40 - 150
Carbamazepine	80.1		P	40 - 150
Clothianidin	90.7		P	40 - 150
Dinotefuran	100		P	40 - 150
Diuron	79.8		P	40 - 150
Fenuron	90.6		P	40 - 150
Fluridone	90.0		P	40 - 150
Hydrocodone	90.1		P	40 - 150
Ibuprofen	63.7		P	40 - 150
Imazapyr	81.9		P	40 - 150
Imidacloprid	84.3		P	40 - 150
Linuron	79.7		P	40 - 150
Mandestrobin	90.0		P	40 - 150
MCPP	88.5		P	40 - 150
Naproxen	79.0		P	40 - 150
Primidone	85.2		P	40 - 150
Pyraclostrobin	83.3		P	40 - 150
Silvex	76.5		P	40 - 150
Thiamethoxam	86.0		P	40 - 150
Tolfenpyrad	54.9		P	30 - 150
Triclopyr	83.5		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P436883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.7		P	92 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2540 C-2015
Batch ID: P437261

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	107		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P437212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	92.0		P	85 - 115

Reference Method: SM 4500-F- C-2011
Batch ID: P436885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P437014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P437110

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P437091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446928	Calcium	102		P	80 - 120
2446928	Iron	110	109	P/P	80 - 120
2446928	Magnesium	103		P	80 - 120
2446928	Potassium	102	101	P/P	80 - 120
2446928	Sodium	106	105	P/P	80 - 120
2446928	Strontium	98.2	97.4	P/P	80 - 120
2446928	Tin	95.5	95.4	P/P	80 - 120
2446928	Titanium	101	101	P/P	80 - 120
2446928	Vanadium	99.5	99.5	P/P	80 - 120
2446928	Zinc	94.0	94.0	P/P	80 - 120
2447188	Calcium	98.7		P	80 - 120
2447188	Iron	109		P	80 - 120
2447188	Magnesium	103		P	80 - 120
2447188	Potassium	102		P	80 - 120
2447188	Sodium	106		P	80 - 120
2447188	Strontium	98.0		P	80 - 120
2447188	Tin	95.2		P	80 - 120
2447188	Titanium	101		P	80 - 120
2447188	Vanadium	100		P	80 - 120
2447188	Zinc	97.5		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P437091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446928	Aluminum	96.6	97.7	P/P	80 - 120
2446928	Antimony	98.0	99.5	P/P	80 - 120
2446928	Arsenic	96.3	98.9	P/P	80 - 120
2446928	Barium	100	101	P/P	80 - 120
2446928	Beryllium	94.0	93.9	P/P	80 - 120
2446928	Boron	101	104	P/P	80 - 120
2446928	Cadmium	99.7	101	P/P	80 - 120
2446928	Chromium	99.2	100	P/P	80 - 120
2446928	Cobalt	91.3	93.1	P/P	80 - 120
2446928	Copper	91.4	92.3	P/P	80 - 120
2446928	Lead	90.6	92.8	P/P	80 - 120
2446928	Manganese	97.7	99.6	P/P	80 - 120
2446928	Molybdenum	97.2	100	P/P	80 - 120
2446928	Nickel	89.7	91.2	P/P	80 - 120
2446928	Selenium	97.3	98.0	P/P	80 - 120
2446928	Silver	105	106	P/P	80 - 120
2446928	Thallium	97.4	100	P/P	80 - 120
2447188	Aluminum	96.7		P	80 - 120
2447188	Antimony	99.5		P	80 - 120
2447188	Arsenic	95.8		P	80 - 120
2447188	Barium	99.7		P	80 - 120
2447188	Beryllium	94.9		P	80 - 120
2447188	Boron	105		P	80 - 120
2447188	Cadmium	101		P	80 - 120
2447188	Chromium	98.8		P	80 - 120
2447188	Cobalt	92.4		P	80 - 120
2447188	Copper	89.0		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2447188	Lead	93.2		P	80 - 120
2447188	Manganese	96.1		P	80 - 120
2447188	Molybdenum	98.8		P	80 - 120
2447188	Nickel	90.4		P	80 - 120
2447188	Selenium	96.5		P	80 - 120
2447188	Silver	105		P	80 - 120
2447188	Thallium	100		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446361	Chloride	103		P	90 - 110
2446439	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446361	Sulfate	103		P	90 - 110
2446439	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446321	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436919

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446371	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446236	Kjeldahl Nitrogen	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446369	Kjeldahl Nitrogen	94.5	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446236	NO2NO3-N	92.0	92.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446237	NO2NO3-N	96.4	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436840

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446281	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446414	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P436712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445805	Acesulfame K	103	110	P/P	40 - 150
2445805	AMPA	52.7	49.7	P/P	40 - 160
2445805	Endothall	96.6	98.0	P/P	40 - 160
2445805	Glufosinate	83.4	81.9	P/P	40 - 160
2445805	Glyphosate	102	101	P/P	40 - 160
2445805	Sucralose	99.5	100	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P436890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446387	2,4-D	90.1	85.9	P/P	40 - 150
2446387	2,4,5-T	102	105	P/P	40 - 150
2446387	Acetaminophen	61.9	65.6	P/P	30 - 150
2446387	Acetamiprid	48.1	46.8	P/P	40 - 150
2446387	Afidopyropen	72.6	69.7	P/P	30 - 150
2446387	Bentazon	42.0	40.9	P/P	30 - 150
2446387	Benzovindiflupyr	76.9	77.6	P/P	40 - 150
2446387	Carbamazepine	48.4	48.7	P/P	40 - 150
2446387	Clothianidin	51.6	52.4	P/P	40 - 150
2446387	Dinotefuran	46.2	48.4	P/P	40 - 150
2446387	Diuron	46.1	46.0	P/P	40 - 150
2446387	Fenuron	31.7	32.2	F/F	40 - 150
2446387	Fluridone	54.0	52.1	P/P	40 - 150
2446387	Hydrocodone	48.6	49.2	P/P	40 - 150
2446387	Ibuprofen	61.7	65.7	P/P	40 - 150
2446387	Imazapyr	69.0	64.1	P/P	40 - 150
2446387	Imidacloprid	77.0	79.0	P/P	40 - 150
2446387	Linuron	59.2	58.5	P/P	40 - 150
2446387	Mandestrobin	83.5	79.9	P/P	40 - 150
2446387	MCPP	109	105	P/P	40 - 150
2446387	Naproxen	63.2	72.0	P/P	40 - 150
2446387	Primidone	49.3	48.6	P/P	40 - 150
2446387	Pyraclostrobin	79.3	79.4	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P436890

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446387	Silvex	102	99.4	P/P	40 - 150
2446387	Thiamethoxam	54.7	55.1	P/P	40 - 150
2446387	Tolfenpyrad	52.8	52.2	P/P	30 - 150
2446387	Triclopyr	106	107	P/P	40 - 150

Reference Method: SM 4500-F- C-2011

Batch ID: P436885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446318	Fluoride	101	100	P/P	94 - 106

Reference Method: SM 5310 B-2011

Batch ID: P437014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446089	Organic Carbon	96.5	98.8	P/P	85 - 115

Reference Method: SM 5310 B-2011

Batch ID: P437110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2446365	Organic Carbon	96.7	95.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P436826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446280	Color (true)	0.797	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P436827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446413	Color (true)	0.804	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P436830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446286	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P437091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446928	Calcium	0.333	Spike	P	0 - 20
2446928	Iron	0.731	Spike	P	0 - 20
2446928	Magnesium	0.573	Spike	P	0 - 20
2446928	Potassium	0.824	Spike	P	0 - 20
2446928	Sodium	0.284	Spike	P	0 - 20
2446928	Strontium	0.749	Spike	P	0 - 20
2446928	Tin	0.0875	Spike	P	0 - 20
2446928	Titanium	0.0360	Spike	P	0 - 20
2446928	Vanadium	0.0142	Spike	P	0 - 20
2446928	Zinc	0.00372	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446928	Aluminum	1.12	Spike	P	0 - 20
2446928	Antimony	1.42	Spike	P	0 - 20
2446928	Arsenic	2.62	Spike	P	0 - 20
2446928	Barium	0.792	Spike	P	0 - 20
2446928	Beryllium	0.176	Spike	P	0 - 20
2446928	Boron	2.46	Spike	P	0 - 20
2446928	Cadmium	1.48	Spike	P	0 - 20
2446928	Chromium	1.02	Spike	P	0 - 20
2446928	Cobalt	2.00	Spike	P	0 - 20
2446928	Copper	1.02	Spike	P	0 - 20
2446928	Lead	2.41	Spike	P	0 - 20
2446928	Manganese	1.91	Spike	P	0 - 20
2446928	Molybdenum	2.64	Spike	P	0 - 20
2446928	Nickel	1.68	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P437091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446928	Selenium	0.691	Spike	P	0 - 20
2446928	Silver	1.23	Spike	P	0 - 20
2446928	Thallium	2.80	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446361	Chloride	0.484	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446361	Sulfate	0.309	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446321	Ammonia-N	1.43	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446371	Ammonia-N	0.131	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446236	Kjeldahl Nitrogen	0.539	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446369	Kjeldahl Nitrogen	5.93	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437011

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446236	NO2NO3-N	0.542	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446237	NO2NO3-N	0.449	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446281	Total-P	0.249	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446414	Total-P	0.266	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P436712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445805	Acesulfame K	6.67	Spike	P	0 - 30
2445805	AMPA	3.71	Spike	P	0 - 30
2445805	Endothall	1.39	Spike	P	0 - 30
2445805	Glufosinate	1.78	Spike	P	0 - 30
2445805	Glyphosate	0.240	Spike	P	0 - 30
2445805	Sucralose	0.810	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P436890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446387	2,4-D	4.71	Spike	P	0 - 30
2446387	2,4,5-T	2.34	Spike	P	0 - 30
2446387	Acetaminophen	5.93	Spike	P	0 - 30
2446387	Acetamiprid	2.82	Spike	P	0 - 30
2446387	Afidopyropen	4.14	Spike	P	0 - 30
2446387	Bentazon	2.48	Spike	P	0 - 30
2446387	Benzovindiflupyr	0.860	Spike	P	0 - 30
2446387	Carbamazepine	0.671	Spike	P	0 - 30
2446387	Clothianidin	1.57	Spike	P	0 - 30
2446387	Dinotefuran	4.62	Spike	P	0 - 30
2446387	Diuron	0.118	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P436890

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446387	Fenuron	1.42	Spike	P	0 - 30
2446387	Fluridone	3.59	Spike	P	0 - 30
2446387	Hydrocodone	1.26	Spike	P	0 - 30
2446387	Ibuprofen	6.28	Spike	P	0 - 30
2446387	Imazapyr	4.82	Spike	P	0 - 30
2446387	Imidacloprid	2.54	Spike	P	0 - 30
2446387	Linuron	1.12	Spike	P	0 - 30
2446387	Mandestrobin	4.43	Spike	P	0 - 30
2446387	MCCP	3.61	Spike	P	0 - 30
2446387	Naproxen	13.1	Spike	P	0 - 30
2446387	Primidone	1.39	Spike	P	0 - 30
2446387	Pyraclostrobin	0.192	Spike	P	0 - 30
2446387	Silvex	2.78	Spike	P	0 - 30
2446387	Thiamethoxam	0.839	Spike	P	0 - 30
2446387	Tolfenpyrad	1.27	Spike	P	0 - 30
2446387	Triclopyr	0.428	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P436883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446318	Total Alkalinity	0.623	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P437261

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446029	TDS	7.64	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P436885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446318	Fluoride	0.483	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P437014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446089	Organic Carbon	1.81	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P437110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2446365	Organic Carbon	1.08	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Surrogates

Lab Sample ID: 2446395
Field Sample ID: G4SD0107

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	92.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	84.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	67.6	P	30 - 160
EPA 8321B	Diuron-d6	50.8	P	30 - 160
EPA 8321B	Endothall-d6	86.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	77.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.8	P	30 - 160
EPA 8321B	Primidone-d5	49.0	P	30 - 160
EPA 8321B	Sucralose-d6	95.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A122268

Included Lab Sample IDs: 2446360, 2446361, 2446364, 2446366, 2446368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 110
Color (true)	99.9	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A122269

Included Lab Sample IDs: 2446360, 2446361, 2446364, 2446366, 2446368

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

Reference Method: SM 2320 B-2011

Run ID: A122296

Included Lab Sample IDs: 2446360, 2446361, 2446364, 2446366, 2446368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.9	94.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A122296

Included Lab Sample IDs: 2446360, 2446361, 2446364, 2446366, 2446368

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

Reference Method: EPA 8321B

Run ID: A122307

Included Lab Sample IDs: 2446395

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	97.3	93.9	P/P	60 - 160
Sucralose	95.8	104	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122310

Included Lab Sample IDs: 2446367, 2446369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122312

Included Lab Sample IDs: 2446362, 2446363, 2446365, 2446367, 2446369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.8	P/P	90 - 110
Ammonia-N	99.4	100	P/P	90 - 110
Ammonia-N	99.5	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122313

Included Lab Sample IDs: 2446362, 2446363, 2446365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	92.5	90.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A122336

Included Lab Sample IDs: 2446395

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	91.0	94.4	P/P	60 - 160
Endothall	85.6	89.6	P/P	60 - 160
Glufosinate	86.0	89.8	P/P	60 - 160
Glyphosate	92.7	94.4	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122345

Included Lab Sample IDs: 2446362, 2446363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.7	90.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122353

Included Lab Sample IDs: 2446362, 2446363, 2446365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	107	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A122367

Included Lab Sample IDs: 2446395

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	83.6	78.2	P/P	50 - 150
2,4,5-T	93.0	76.1	P/P	50 - 150
Acetaminophen	110	107	P/P	60 - 160
Acetamiprid	106	106	P/P	50 - 150
Afidopyropen	94.7	89.6	P/P	50 - 150
Bentazon	105	99.2	P/P	50 - 160
Benzovindiflupyr	105	104	P/P	50 - 150
Carbamazepine	101	104	P/P	60 - 150
Clothianidin	107	103	P/P	60 - 150
Dinotefuran	107	113	P/P	50 - 150
Diuron	109	112	P/P	60 - 160
Fenuron	107	107	P/P	60 - 150
Fluridone	113	115	P/P	60 - 160
Hydrocodone	108	112	P/P	60 - 150
Ibuprofen	97.5	99.3	P/P	50 - 160
Imazapyr	87.6	90.9	P/P	50 - 150
Imidacloprid	97.9	98.3	P/P	60 - 150
Linuron	105	106	P/P	60 - 150
Mandestrobin	104	106	P/P	50 - 150
MCPP	93.9	78.9	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A122367
Included Lab Sample IDs: 2446395

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Naproxen	107	60.0	P/P	50 - 160
Primidone	95.5	99.4	P/P	60 - 150
Pyraclostrobin	112	108	P/P	60 - 150
Silvex	98.5	82.8	P/P	50 - 150
Thiamethoxam	108	109	P/P	50 - 150
Tolfenpyrad	101	104	P/P	60 - 150
Triclopyr	92.6	84.6	P/P	50 - 150

Reference Method: SM 5310 B-2011
Run ID: A122369
Included Lab Sample IDs: 2446362, 2446363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A122370
Included Lab Sample IDs: 2446365, 2446367, 2446369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A122402
Included Lab Sample IDs: 2446367, 2446369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A122424
Included Lab Sample IDs: 2446365, 2446367, 2446369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.3	97.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A122474
Included Lab Sample IDs: 2446397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.1	99.3	P/P	90 - 110
Antimony	97.1	96.9	P/P	90 - 110
Arsenic	98.6	97.1	P/P	90 - 110
Barium	99.3	99.8	P/P	90 - 110
Beryllium	98.2	97.5	P/P	90 - 110
Boron	100	101	P/P	90 - 110
Cadmium	99.6	101	P/P	90 - 110
Chromium	102	102	P/P	90 - 110
Cobalt	96.2	94.3	P/P	90 - 110
Copper	94.6	93.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A122474

Included Lab Sample IDs: 2446397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	93.4	93.3	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Molybdenum	98.4	98.6	P/P	90 - 110
Nickel	96.6	94.8	P/P	90 - 110
Selenium	101	101	P/P	90 - 110
Silver	99.5	99.9	P/P	90 - 110
Thallium	97.3	98.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A122477

Included Lab Sample IDs: 2446397

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	104	P/P	95 - 105
Iron	102	103	P/P	95 - 105
Magnesium	103	103	P/P	95 - 105
Potassium	100	101	P/P	95 - 105
Sodium	101	101	P/P	95 - 105
Strontium	99.9	99.3	P/P	95 - 105
Tin	100	100	P/P	95 - 105
Titanium	101	101	P/P	95 - 105
Vanadium	101	100	P/P	95 - 105
Zinc	101	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A122479

Included Lab Sample IDs: 2446360, 2446361, 2446364, 2446366, 2446368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	99.9	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	99.8	101	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			Precision SMP	MS
			LCS				
DEP SOP: NU-094-1	Color (true)	99.8				0.797	
	Color (true)	101				0.804	
EPA 180.1 Rev. 2.0	Turbidity	104				0.0	
EPA 200.7 Rev. 4.4	Calcium	106	102	98.7			0.333
	Iron	112	110	109	109		0.731
	Magnesium	105	103	103			0.573
	Potassium	103	102	101	102		0.824
	Sodium	107	106	105	106		0.284
	Strontium	99.9	98.2	97.4	98.0		0.749
	Tin	98.7	95.5	95.4	95.2		0.0875
	Titanium	102	101	101	101		0.0360
	Vanadium	101	99.5	99.5	100		0.0142
	Zinc	98.2	94.0	94.0	97.5		0.0037
EPA 200.8 Rev. 5.4	Aluminum	99.3	96.7	96.6	97.7		1.12
	Antimony	97.3	99.5	98.0	99.5		1.42
	Arsenic	97.1	95.8	96.3	98.9		2.62
	Barium	101	99.7	100	101		0.792
	Beryllium	93.8	94.9	94.0	93.9		0.176
	Boron	102	105	101	104		2.46
	Cadmium	100	101	99.7	101		1.48
	Chromium	98.9	98.8	99.2	100		1.02
	Cobalt	95.2	92.4	91.3	93.1		2.00
	Copper	93.9	89.0	91.4	92.3		1.02
	Lead	91.9	93.2	90.6	92.8		2.41
	Manganese	98.8	96.1	97.7	99.6		1.91
	Molybdenum	96.9	98.8	97.2	100		2.64
	Nickel	93.6	90.4	89.7	91.2		1.68
	Selenium	99.2	96.5	97.3	98.0		0.691
	Silver	105	105	105	106		1.23
	Thallium	96.1	100	97.4	100		2.80
EPA 300.0 Rev. 2.1	Chloride	101	103	102		0.484	
	Sulfate	102	103	102		0.309	
EPA 350.1 Rev. 2.0	Ammonia-N	99.2	100	103			1.43
	Ammonia-N	99.2	100	100			0.131
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	103	103			0.539
	Kjeldahl Nitrogen	106	94.5	104			5.93
EPA 353.2 Rev. 2.0	NO2NO3-N	92.0	92.0	92.5			0.542
	NO2NO3-N	98.5	96.4	95.8			0.449
EPA 365.1 Rev. 2.0	Total-P	102	104	104			0.249
	Total-P	103	105	105			0.266
EPA 8321B	2,4-D	77.0	90.1	85.9			4.71
	2,4,5-T	76.0	102	105			2.34
	Acesulfame K	84.6	103	110			6.67
	Acetaminophen	94.0	61.9	65.6			5.93
	Acetamiprid	85.3	48.1	46.8			2.82
	Afidopyropen	79.7	72.6	69.7			4.14
	AMPA	88.4	52.7	49.7			3.71
	Bentazon	92.2	42.0	40.9			2.48
	Benzovindiflupyr	82.5	76.9	77.6			0.860
	Carbamazepine	80.1	48.4	48.7			0.671
	Clothianidin	90.7	51.6	52.4			1.57
	Dinotefuran	100	46.2	48.4			4.62
	Diuron	79.8	46.1	46.0			0.118
	Endothall	93.9	96.6	98.0			1.39

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Fenuron	90.6	31.7	32.2			1.42
	Fluridone	90.0	54.0	52.1			3.59
	Glufosinate	96.5	83.4	81.9			1.78
	Glyphosate	99.0	102	101			0.240
	Hydrocodone	90.1	48.6	49.2			1.26
	Ibuprofen	63.7	61.7	65.7			6.28
	Imazapyr	81.9	69.0	64.1			4.82
	Imidacloprid	84.3	77.0	79.0			2.54
	Linuron	79.7	59.2	58.5			1.12
	Mandestrobin	90.0	83.5	79.9			4.43
	MCPP	88.5	109	105			3.61
	Naproxen	79.0	63.2	72.0			13.1
	Primidone	85.2	49.3	48.6			1.39
	Pyraclostrobin	83.3	79.3	79.4			0.192
	Silvex	76.5	102	99.4			2.78
	Sucralose	90.8	99.5	100			0.810
	Thiamethoxam	86.0	54.7	55.1			0.839
	Tolfenpyrad	54.9	52.8	52.2			1.27
	Triclopyr	83.5	106	107			0.428
SM 2320 B-2011	Total Alkalinity	97.7				0.623	
SM 2540 C-2015	TDS	107				7.64	
SM 2540 D-2015	TSS	92.0					
SM 4500-F- C-2011	Fluoride	101	101	100			0.483
SM 5310 B-2011	Organic Carbon	96.4	96.5	98.8			1.81
	Organic Carbon	97.0	96.7	95.1			1.08

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2446360, 2446361, 2446364, 2446366, 2446368
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2446360, 2446361, 2446364, 2446366, 2446368
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2446397
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2446397
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2446360, 2446361, 2446364, 2446366, 2446368
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2446360, 2446361, 2446364, 2446366, 2446368
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2446362, 2446363, 2446365, 2446367, 2446369
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2446362, 2446363, 2446365, 2446367, 2446369
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2446362, 2446363, 2446365, 2446367, 2446369
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2446362, 2446363, 2446365, 2446367, 2446369
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2446395
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2446360, 2446361, 2446364, 2446366, 2446368
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2446397
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2446360, 2446361, 2446364, 2446366, 2446368

Reference Method Descriptions

Method	Description	Associated Samples
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2446360, 2446361, 2446364, 2446366, 2446368
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2446360, 2446361, 2446364, 2446366, 2446368
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2446362, 2446363, 2446365, 2446367, 2446369

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	10/20/2023			10/20/2023 14:15	Anna M. Plaviak	2446360
	10/20/2023			10/20/2023 14:16	Anna M. Plaviak	2446361
	10/20/2023			10/20/2023 14:17	Anna M. Plaviak	2446364
	10/20/2023			10/20/2023 14:43	Anna M. Plaviak	2446366
	10/20/2023			10/20/2023 14:44	Anna M. Plaviak	2446368
EPA 180.1 Rev. 2.0	10/20/2023			10/20/2023 13:16	Khloe J Berg	2446360
	10/20/2023			10/20/2023 13:17	Khloe J Berg	2446361
	10/20/2023			10/20/2023 13:19	Khloe J Berg	2446364
	10/20/2023			10/20/2023 13:21	Khloe J Berg	2446366
	10/20/2023			10/20/2023 13:23	Khloe J Berg	2446368
EPA 200.7 Rev. 4.4	10/20/2023	10/27/2023 13:55	George D Taylor	10/31/2023 13:46	Chase Roberts	2446397
EPA 200.8 Rev. 5.4	10/20/2023	10/27/2023 13:55	George D Taylor	10/31/2023 14:47	Conrad Hartmann	2446397
EPA 300.0 Rev. 2.1	10/20/2023			10/30/2023 23:09	James L Waggeberby	2446361
	10/20/2023			10/31/2023 01:25	James L Waggeberby	2446360
	10/20/2023			10/31/2023 01:40	James L Waggeberby	2446364
	10/20/2023			10/31/2023 01:55	James L Waggeberby	2446366
	10/20/2023			10/31/2023 02:41	James L Waggeberby	2446368
EPA 350.1 Rev. 2.0	10/20/2023			10/24/2023 12:04	Khloe J Berg	2446362
	10/20/2023			10/24/2023 12:06	Khloe J Berg	2446363
	10/20/2023			10/24/2023 12:08	Khloe J Berg	2446367
	10/20/2023			10/24/2023 12:27	Khloe J Berg	2446369
	10/20/2023			10/24/2023 13:19	Khloe J Berg	2446365
EPA 351.2 Rev. 2.0	10/20/2023	10/24/2023 11:15	Ping Hua	10/25/2023 12:27	Samantha L Bates	2446362
	10/20/2023	10/24/2023 11:15	Ping Hua	10/25/2023 12:29	Samantha L Bates	2446363
	10/20/2023	10/24/2023 11:15	Ping Hua	10/26/2023 10:41	Samantha L Bates	2446365
	10/20/2023	10/24/2023 11:15	Ping Hua	10/26/2023 10:42	Samantha L Bates	2446367
	10/20/2023	10/24/2023 11:15	Ping Hua	10/26/2023 10:47	Samantha L Bates	2446369
EPA 353.2 Rev. 2.0	10/20/2023			10/23/2023 16:33	Fadila Guebre	2446362
	10/20/2023			10/23/2023 16:34	Fadila Guebre	2446363
	10/20/2023			10/23/2023 16:35	Fadila Guebre	2446365
	10/20/2023			10/26/2023 14:24	Fadila Guebre	2446367
	10/20/2023			10/26/2023 14:25	Fadila Guebre	2446369
EPA 365.1 Rev. 2.0	10/20/2023	10/23/2023 13:55	Simonne.V. Calhoun	10/24/2023 12:44	Simonne.V. Calhoun	2446367
	10/20/2023	10/23/2023 13:55	Simonne.V. Calhoun	10/24/2023 12:45	Simonne.V. Calhoun	2446369
	10/20/2023	10/23/2023 13:55	Simonne.V. Calhoun	10/25/2023 15:40	Simonne.V. Calhoun	2446362
	10/20/2023	10/23/2023 13:55	Simonne.V. Calhoun	10/25/2023 15:41	Simonne.V. Calhoun	2446363
	10/20/2023	10/23/2023 13:55	Simonne.V. Calhoun	10/25/2023 15:42	Simonne.V. Calhoun	2446365
EPA 8321B	10/20/2023	10/20/2023 12:00	Hana Lee	10/23/2023 15:22	Tae K Lee	2446395
	10/20/2023	10/20/2023 12:00	Hana Lee	10/24/2023 05:21	Tae K Lee	2446395
	10/20/2023	10/25/2023 09:00	Hoor Shaik	10/25/2023 18:10	Juyoung Kim	2446395

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	10/20/2023			10/23/2023 19:49	Adam P Silver	2446360
	10/20/2023			10/23/2023 20:02	Adam P Silver	2446361
	10/20/2023			10/23/2023 20:14	Adam P Silver	2446364
	10/20/2023			10/23/2023 20:25	Adam P Silver	2446366
	10/20/2023			10/23/2023 20:38	Adam P Silver	2446368
SM 2340 B-2011	10/20/2023			10/31/2023 13:46	Chase Roberts	2446397
SM 2540 C-2015	10/20/2023			10/24/2023 15:22	Yijie Li	2446360, 2446361, 2446364, 2446366, 2446368
SM 2540 D-2015	10/20/2023			10/24/2023 15:22	Yijie Li	2446360, 2446361, 2446364, 2446366, 2446368
SM 4500-F- C-2011	10/20/2023			10/23/2023 19:49	Adam P Silver	2446360
	10/20/2023			10/23/2023 20:02	Adam P Silver	2446361
	10/20/2023			10/23/2023 20:14	Adam P Silver	2446364
	10/20/2023			10/23/2023 20:25	Adam P Silver	2446366
	10/20/2023			10/23/2023 20:38	Adam P Silver	2446368
SM 5310 B-2011	10/20/2023			10/25/2023 21:02	Elise M. Gillis	2446362
	10/20/2023			10/25/2023 21:16	Elise M. Gillis	2446363
	10/20/2023			10/26/2023 23:13	Elise M. Gillis	2446365
	10/20/2023			10/27/2023 00:39	Elise M. Gillis	2446367
	10/20/2023			10/27/2023 00:53	Elise M. Gillis	2446369