

Chemical Analysis Report

SO-DIST-2023-07-21-02

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

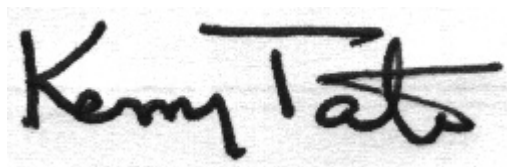
Event Description: **2023 SMP : Land O' Lakes**
Request ID: **RQ-2023-07-10-58**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 11-AUG-2023 08:00

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Bonnet Creek at SR 64

Collection Date/Time: 07/20/2023 10:00

Field ID: G4SD0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2426046	DEP SOP: NU-094-1	Color (true)	260		PCU	P432875	
	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P432877	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P433128	
		Sulfate	19		mg SO4/L	P433130	
	SM 2320 B-2011	Total Alkalinity	24		mg CaCO3/L	P432943	
	SM 2540 C-2015	TDS	169		mg/L	P433338	
	SM 2540 D-2015	TSS	5	I	mg/L	P433188	
2426047	SM 4500-F- C-2011	Fluoride	0.10		mg F/L	P432945	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P433177	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P432931	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P433020	
	EPA 365.1 Rev. 2.0	Total-P	0.95		mg P/L	P432962	
2426070	SM 5310 B-2011	Organic Carbon	29		mg C/L	P433196	
	EPA 8321B	2,4-D	0.0020	U	ug/L	P432883	
		Acesulfame K	0.10	U	ug/L	P432932	
		2,4,5-T	0.0040	U	ug/L	P432883	
		AMPA	0.51		ug/L	P432932	
		Acetaminophen	0.0080	U	ug/L	P432883	
		Acetamiprid	0.0020	U	ug/L	P432883	
		Endothall	0.25	U	ug/L	P432932	
		Glufosinate	0.10	U	ug/L	P432932	
		Glyphosate	0.10	U	ug/L	P432932	
		Afidopyropen	0.0020	U	ug/L	P432883	
		Bentazon	0.13		ug/L	P432883	
		Sucralose	0.039	I	ug/L	P432932	
		Benzovindiflupyr	0.0020	U	ug/L	P432883	
		Carbamazepine	8.0E-04	U	ug/L	P432883	
		Clothianidin	0.0093		ug/L	P432883	
		Dinotefuran	0.0020	U	ug/L	P432883	
		Diuron	0.0020	U	ug/L	P432883	
		Fenuron	0.032	U	ug/L	P432883	
		Fluridone	8.0E-04	U	ug/L	P432883	
		Imazapyr	0.0040	U	ug/L	P432883	
		Hydrocodone	0.0020	U	ug/L	P432883	
		Ibuprofen	0.080	U	ug/L	P432883	
		Imidacloprid	0.021		ug/L	P432883	
		Linuron	0.0040	U	ug/L	P432883	
		Mandestrobin	0.0020	U	ug/L	P432883	
		MCPP	0.0020	U	ug/L	P432883	
		Naproxen	0.0080	U	ug/L	P432883	
		Primidone	0.0040	U	ug/L	P432883	
		Pyraclostrobin	0.0020	U	ug/L	P432883	
		Silvex	0.0040	U	ug/L	P432883	
		Thiamethoxam	0.055		ug/L	P432883	

MS

Field ID: G4SD0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2426070	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P432883	
		Triclopyr	0.0040	U	ug/L	P432883	

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: 07/20/2023 10:55

Field ID: G4SD0179

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2426040	DEP SOP: NU-094-1	Color (true)	32		PCU	P432874	
	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P432877	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P433128	
		Sulfate	17		mg SO4/L	P433130	
	SM 2320 B-2011	Total Alkalinity	28		mg CaCO3/L	P432943	
	SM 2540 C-2015	TDS	119		mg/L	P433338	
	SM 2540 D-2015	TSS	4	I	mg/L	P433188	
2426041	SM 4500-F- C-2011	Fluoride	0.078	I	mg F/L	P432945	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P433177	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P432930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P433019	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P432962	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P433196	

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: 07/20/2023 11:50

Field ID: G4SD0224

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2426042	DEP SOP: NU-094-1	Color (true)	16	A	PCU	P432875	
	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P432877	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P433128	
		Sulfate	29		mg SO4/L	P433130	
	SM 2320 B-2011	Total Alkalinity	21		mg CaCO3/L	P432943	
	SM 2540 C-2015	TDS	131		mg/L	P433338	
	SM 2540 D-2015	TSS	4	I	mg/L	P433188	
	SM 4500-F- C-2011	Fluoride	0.052	I	mg F/L	P432945	
2426043	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P433177	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P432930	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P433019	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P432962	
	SM 5310 B-2011	Organic Carbon	9.1		mg C/L	P433196	

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: 07/20/2023 12:55

Field ID: G4SD0213

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2426044	DEP SOP: NU-094-1	Color (true)	470		PCU	P432875	
	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P432877	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P433128	
		Sulfate	16		mg SO4/L	P433130	
	SM 2320 B-2011	Total Alkalinity	4.4		mg CaCO3/L	P432943	
	SM 2540 C-2015	TDS	168		mg/L	P433338	
	SM 2540 D-2015	TSS	2	I	mg/L	P433188	
2426045	SM 4500-F- C-2011	Fluoride	0.072	I	mg F/L	P432945	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P433177	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P433216	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P433020	
	EPA 365.1 Rev. 2.0	Total-P	0.99		mg P/L	P432962	
2426071	SM 5310 B-2011	Organic Carbon	40		mg C/L	P433196	
	EPA 200.7 Rev. 4.4	Calcium	8.01		mg/L	P432914	
		Iron	160		ug/L	P432914	
		Magnesium	4.21		mg/L	P432914	
		Potassium	10.4		mg/L	P432914	
		Sodium	5.0		mg/L	P432914	
		Strontium	371		ug/L	P432914	
		Tin	3.0	U	ug/L	P432914	
		Titanium	7.4		ug/L	P432914	
		Vanadium	2.0	U	ug/L	P432914	
		Zinc	5.0	U	ug/L	P432914	
	EPA 200.8 Rev. 5.4	Aluminum	424		ug/L	P432914	
		Antimony	0.050	U	ug/L	P432914	
		Arsenic	0.72		ug/L	P432914	
		Barium	3.53		ug/L	P432914	
		Beryllium	0.016	I	ug/L	P432914	
		Boron	43.1		ug/L	P432914	
		Cadmium	0.020	U	ug/L	P432914	
		Chromium	0.58	I	ug/L	P432914	
		Cobalt	0.165		ug/L	P432914	
		Copper	0.88		ug/L	P432914	
		Lead	0.21	I	ug/L	P432914	
		Manganese	7.16		ug/L	P432914	
		Molybdenum	0.30	I	ug/L	P432914	
		Nickel	0.62	I	ug/L	P432914	
		Selenium	0.23	I	ug/L	P432914	
		Silver	0.036	I	ug/L	P432914	
		Thallium	0.10	U	ug/L	P432914	
	SM 2340 B-2011	Hardness	37.3		mg/L	P432914	

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: P432874

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P432875

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432877

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P432914

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: P432914

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: P433128

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433130

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433177

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432930

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432931

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433216

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433019

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433020

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432962

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P432883

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: EPA 8321B

Batch ID: P432932

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

Reference Method: SM 2320 B-2011

Batch ID: P432943

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

Reference Method: SM 2540 C-2015

Batch ID: P433338

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2015
Batch ID: P433188

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P432945

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P433196

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: P432874

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.3		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P432875

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432877

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P432914

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	96.6		P	85 - 115
Iron	94.6		P	85 - 115
Magnesium	96.5		P	85 - 115
Potassium	98.4		P	85 - 115
Sodium	101		P	85 - 115
Strontium	96.4		P	85 - 115
Tin	96.1		P	85 - 115
Titanium	98.0		P	85 - 115
Vanadium	98.1		P	85 - 115
Zinc	96.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P432914

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	102		P	85 - 115
Barium	102		P	85 - 115
Beryllium	96.3		P	85 - 115
Boron	106		P	85 - 115
Cadmium	99.9		P	85 - 115
Chromium	97.8		P	85 - 115
Cobalt	100		P	85 - 115
Copper	93.9		P	85 - 115
Lead	103		P	85 - 115
Manganese	94.4		P	85 - 115
Molybdenum	100		P	85 - 115
Nickel	102		P	85 - 115
Selenium	100		P	85 - 115
Silver	113		P	85 - 115
Thallium	101		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433128

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433130

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433177

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432931

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: P433216

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: P433019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433020

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: P432962

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P432883

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	81.8		P	40 - 150
2,4,5-T	70.3		P	40 - 150
Acetaminophen	79.0		P	30 - 150
Acetamiprid	79.5		P	40 - 150
Afidopyropen	57.9		P	30 - 150
Bentazon	126		P	30 - 150
Benzovindiflupyr	78.2		P	40 - 150
Carbamazepine	69.8		P	40 - 150
Clothianidin	88.8		P	40 - 150
Dinotefuran	88.5		P	40 - 150
Diuron	44.0		P	40 - 150
Fenuron	96.2		P	40 - 150
Fluridone	98.8		P	40 - 150
Hydrocodone	80.8		P	40 - 150
Ibuprofen	72.5		P	40 - 150
Imazapyr	79.8		P	40 - 150
Imidacloprid	73.2		P	40 - 150
Linuron	52.1		P	40 - 150
Mandestrobin	81.4		P	40 - 150
MCPP	86.2		P	40 - 150
Naproxen	69.0		P	40 - 150
Primidone	68.7		P	40 - 150
Pyraclostrobin	74.0		P	40 - 150
Silvex	87.9		P	40 - 150
Thiamethoxam	98.3		P	40 - 150
Tolfenpyrad	56.8		P	30 - 150
Triclopyr	70.8		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P432932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	94.9		P	40 - 150
AMPA	57.2		P	40 - 150
Endothall	91.1		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	110		P	40 - 150
Sucralose	96.0		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P432943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	93.6		P	92 - 105

Reference Method: SM 2540 C-2015

Batch ID: P433338

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P433188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.9		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P432945

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P433196

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P432914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425425	Calcium	95.7		P	80 - 120
2425425	Iron	98.7	99.6	P/P	80 - 120
2425425	Magnesium	95.9		P	80 - 120
2425425	Potassium	97.5		P	80 - 120
2425425	Sodium	102		P	80 - 120
2425425	Strontium	99.6	100	P/P	80 - 120
2425425	Tin	94.5	91.5	P/P	80 - 120
2425425	Titanium	95.2	95.3	P/P	80 - 120
2425425	Vanadium	94.3	94.5	P/P	80 - 120
2425425	Zinc	92.7	93.1	P/P	80 - 120
2425967	Calcium	101		P	80 - 120
2425967	Iron	103		P	80 - 120
2425967	Magnesium	104		P	80 - 120
2425967	Potassium	105		P	80 - 120
2425967	Sodium	107		P	80 - 120
2425967	Strontium	105		P	80 - 120
2425967	Tin	98.4		P	80 - 120
2425967	Titanium	100		P	80 - 120
2425967	Vanadium	101		P	80 - 120
2425967	Zinc	97.9		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P432914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425425	Aluminum	102	103	P/P	80 - 120
2425425	Antimony	101	101	P/P	80 - 120
2425425	Arsenic	102	102	P/P	80 - 120
2425425	Barium	103	104	P/P	80 - 120
2425425	Beryllium	96.8	98.5	P/P	80 - 120
2425425	Boron	106	108	P/P	80 - 120
2425425	Cadmium	100	101	P/P	80 - 120
2425425	Chromium	99.0	99.2	P/P	80 - 120
2425425	Cobalt	99.1	99.1	P/P	80 - 120
2425425	Copper	91.9	90.7	P/P	80 - 120
2425425	Lead	104	105	P/P	80 - 120
2425425	Manganese	90.9	94.1	P/P	80 - 120
2425425	Molybdenum	99.8	99.8	P/P	80 - 120
2425425	Nickel	101	102	P/P	80 - 120
2425425	Selenium	102	100	P/P	80 - 120
2425425	Silver	110	109	P/P	80 - 120
2425425	Thallium	106	106	P/P	80 - 120
2425967	Aluminum	103		P	80 - 120
2425967	Antimony	102		P	80 - 120
2425967	Arsenic	101		P	80 - 120
2425967	Barium	103		P	80 - 120
2425967	Beryllium	90.6		P	80 - 120
2425967	Boron	108		P	80 - 120
2425967	Cadmium	99.6		P	80 - 120
2425967	Chromium	99.0		P	80 - 120
2425967	Cobalt	98.8		P	80 - 120
2425967	Copper	98.3		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P432914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425967	Lead	103		P	80 - 120
2425967	Manganese	93.2		P	80 - 120
2425967	Molybdenum	99.2		P	80 - 120
2425967	Nickel	99.1		P	80 - 120
2425967	Selenium	98.0		P	80 - 120
2425967	Silver	108		P	80 - 120
2425967	Thallium	105		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425969	Chloride	96.8		P	90 - 110
2426128	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433130

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425969	Sulfate	93.3		P	90 - 110
2426128	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426041	Ammonia-N	99.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426004	Kjeldahl Nitrogen	102	93.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426136	Kjeldahl Nitrogen	99.3	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427019	Kjeldahl Nitrogen	97.4	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425096	NO2NO3-N	91.5		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426134	NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426041	Total-P	99.7	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P432883

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425633	2,4-D	113	118	P/P	40 - 150
2425633	2,4,5-T	109	104	P/P	40 - 150
2425633	Acetaminophen	99.4	98.4	P/P	30 - 150
2425633	Acetamiprid	60.0	61.8	P/P	40 - 150
2425633	Afidopyropen	66.9	73.3	P/P	30 - 150
2425633	Bentazon	119	117	P/P	30 - 150
2425633	Benzovindiflupyr	80.7	79.7	P/P	40 - 150
2425633	Carbamazepine	50.0	55.9	P/P	40 - 150
2425633	Clothianidin	87.2	84.9	P/P	40 - 150
2425633	Dinotefuran	67.5	82.3	P/P	40 - 150
2425633	Diuron	31.6	34.4	F/F	40 - 150
2425633	Fenuron	61.1	64.6	P/P	40 - 150
2425633	Fluridone	87.9	90.3	P/P	40 - 150
2425633	Hydrocodone	60.2	62.3	P/P	40 - 150
2425633	Ibuprofen	66.2	69.8	P/P	40 - 150
2425633	Imazapyr	95.7	98.5	P/P	40 - 150
2425633	Imidacloprid	115	120	P/P	40 - 150
2425633	Linuron	52.8	50.5	P/P	40 - 150
2425633	Mandestrobin	80.0	85.3	P/P	40 - 150
2425633	MCPP	124	123	P/P	40 - 150
2425633	Naproxen	128	128	P/P	40 - 150
2425633	Primidone	78.0	75.2	P/P	40 - 150
2425633	Pyraclostrobin	77.3	76.6	P/P	40 - 150
2425633	Silvex	116	114	P/P	40 - 150
2425633	Thiamethoxam	76.5	76.7	P/P	40 - 150
2425633	Tolfenpyrad	57.7	56.4	P/P	30 - 150
2425633	Triclopyr	102	103	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P432932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426070	Acesulfame K	109	118	P/P	40 - 150
2426070	AMPA	61.9	66.9	P/P	40 - 150
2426070	Endothall	128	127	P/P	40 - 150
2426070	Glufosinate	82.2	77.1	P/P	40 - 150
2426070	Glyphosate	116	111	P/P	40 - 150
2426070	Sucralose	104	94.5	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P432945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425984	Fluoride	99.1	98.6	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P433196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2425581	Organic Carbon	93.9	93.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P432874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425969	Color (true)	1.22	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P432875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426042	Color (true)	0.295	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P432877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426034	Turbidity	3.91	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P432914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425425	Calcium	1.64	Spike	P	0 - 20
2425425	Iron	0.869	Spike	P	0 - 20
2425425	Magnesium	1.73	Spike	P	0 - 20
2425425	Potassium	0.803	Spike	P	0 - 20
2425425	Sodium	0.711	Spike	P	0 - 20
2425425	Strontium	0.522	Spike	P	0 - 20
2425425	Tin	3.17	Spike	P	0 - 20
2425425	Titanium	0.0979	Spike	P	0 - 20
2425425	Vanadium	0.230	Spike	P	0 - 20
2425425	Zinc	0.488	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P432914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425425	Aluminum	0.963	Spike	P	0 - 20
2425425	Antimony	0.116	Spike	P	0 - 20
2425425	Arsenic	0.0813	Spike	P	0 - 20
2425425	Barium	0.408	Spike	P	0 - 20
2425425	Beryllium	1.67	Spike	P	0 - 20
2425425	Boron	1.39	Spike	P	0 - 20
2425425	Cadmium	0.480	Spike	P	0 - 20
2425425	Chromium	0.176	Spike	P	0 - 20
2425425	Cobalt	0.0474	Spike	P	0 - 20
2425425	Copper	1.38	Spike	P	0 - 20
2425425	Lead	0.625	Spike	P	0 - 20
2425425	Manganese	1.68	Spike	P	0 - 20
2425425	Molybdenum	0.0305	Spike	P	0 - 20
2425425	Nickel	1.24	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P432914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425425	Selenium	1.59	Spike	P	0 - 20
2425425	Silver	0.833	Spike	P	0 - 20
2425425	Thallium	0.528	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425969	Chloride	0.335	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P433130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425969	Sulfate	0.0274	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426041	Ammonia-N	0.372	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426004	Kjeldahl Nitrogen	5.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426136	Kjeldahl Nitrogen	6.77	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427019	Kjeldahl Nitrogen	5.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433019

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: P433019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425096	NO2NO3-N	0.521	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426134	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426041	Total-P	1.34	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P432883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425633	2,4-D	4.43	Spike	P	0 - 30
2425633	2,4,5-T	4.92	Spike	P	0 - 30
2425633	Acetaminophen	1.09	Spike	P	0 - 30
2425633	Acetamiprid	3.04	Spike	P	0 - 30
2425633	Afidopyropen	9.12	Spike	P	0 - 30
2425633	Bentazon	1.48	Spike	P	0 - 30
2425633	Benzovindiflupyr	1.21	Spike	P	0 - 30
2425633	Carbamazepine	11.1	Spike	P	0 - 30
2425633	Clothianidin	2.58	Spike	P	0 - 30
2425633	Dinotefuran	19.8	Spike	P	0 - 30
2425633	Diuron	8.62	Spike	P	0 - 30
2425633	Fenuron	5.50	Spike	P	0 - 30
2425633	Fluridone	2.69	Spike	P	0 - 30
2425633	Hydrocodone	3.44	Spike	P	0 - 30
2425633	Ibuprofen	5.32	Spike	P	0 - 30
2425633	Imazapyr	2.90	Spike	P	0 - 30
2425633	Imidacloprid	4.25	Spike	P	0 - 30
2425633	Linuron	4.34	Spike	P	0 - 30
2425633	Mandestrobin	6.39	Spike	P	0 - 30
2425633	MCPP	0.402	Spike	P	0 - 30
2425633	Naproxen	0.122	Spike	P	0 - 30
2425633	Primidone	3.65	Spike	P	0 - 30
2425633	Pyraclostrobin	0.916	Spike	P	0 - 30
2425633	Silvex	2.05	Spike	P	0 - 30
2425633	Thiamethoxam	0.286	Spike	P	0 - 30
2425633	Tolfenpyrad	2.18	Spike	P	0 - 30
2425633	Triclopyr	0.638	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P432932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426070	Acesulfame K	7.96	Spike	P	0 - 30
2426070	AMPA	5.89	Spike	P	0 - 30
2426070	Endothall	0.873	Spike	P	0 - 30
2426070	Glufosinate	6.34	Spike	P	0 - 30
2426070	Glyphosate	4.09	Spike	P	0 - 30
2426070	Sucralose	9.11	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P432943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425984	Total Alkalinity	0.713	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P433338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425813	TDS	8.45	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P432945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425984	Fluoride	0.498	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P433196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2425581	Organic Carbon	0.422	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2426070
Field Sample ID: G4SD0107

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	115	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	44.5	P	30 - 160
EPA 8321B	Diuron-d6	40.3	P	30 - 160
EPA 8321B	Endothall-d6	142	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	108	P	30 - 160
EPA 8321B	Ibuprofen-d3	80.5	P	30 - 160
EPA 8321B	Primidone-d5	85.8	P	30 - 160
EPA 8321B	Sucralose-d6	96.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A120563

Included Lab Sample IDs: 2426040, 2426042, 2426044, 2426046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	100	P/P	90 - 110
Color (true)	99.8	102	P/P	90 - 110
Color (true)	100	99.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A120564

Included Lab Sample IDs: 2426040, 2426042, 2426044, 2426046

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

Reference Method: SM 2320 B-2011

Run ID: A120602

Included Lab Sample IDs: 2426040, 2426042, 2426044, 2426046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.2	92.6	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A120602

Included Lab Sample IDs: 2426040, 2426042, 2426044, 2426046

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A120632

Included Lab Sample IDs: 2426071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.2	95.6	P/P	90 - 110
Antimony	95.5	93.4	P/P	90 - 110
Arsenic	96.0	94.6	P/P	90 - 110
Barium	95.6	94.6	P/P	90 - 110
Boron	101	98.6	P/P	90 - 110
Cadmium	95.7	94.7	P/P	90 - 110
Chromium	96.5	94.0	P/P	90 - 110
Cobalt	94.9	93.5	P/P	90 - 110
Lead	98.3	96.3	P/P	90 - 110
Molybdenum	94.3	92.6	P/P	90 - 110
Nickel	95.6	93.9	P/P	90 - 110
Selenium	95.7	95.0	P/P	90 - 110
Thallium	97.8	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120643

Included Lab Sample IDs: 2426041, 2426043, 2426045, 2426047

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120647

Included Lab Sample IDs: 2426045, 2426047

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120652

Included Lab Sample IDs: 2426041, 2426043, 2426047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	95.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A120671

Included Lab Sample IDs: 2426071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	93.7	91.4	P/P	90 - 110
Manganese	95.8	95.1	P/P	90 - 110
Silver	96.2	95.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A120686

Included Lab Sample IDs: 2426040, 2426042, 2426044, 2426046

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.1	99.7	P/P	90 - 110
Sulfate	98.9	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120688

Included Lab Sample IDs: 2426041, 2426043

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A120693

Included Lab Sample IDs: 2426071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	95.9	97.7	P/P	90 - 110
Iron	94.5	99.4	P/P	90 - 110
Magnesium	94.2	98.8	P/P	90 - 110
Potassium	97.4	103	P/P	90 - 110
Sodium	101	105	P/P	90 - 110
Strontium	105	102	P/P	90 - 110
Tin	99.7	95.5	P/P	90 - 110
Titanium	101	97.1	P/P	90 - 110
Vanadium	101	96.8	P/P	90 - 110
Zinc	101	96.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A120694

Included Lab Sample IDs: 2426071

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	94.0	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120706

Included Lab Sample IDs: 2426041, 2426043, 2426045, 2426047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.9	P/P	90 - 110
Ammonia-N	99.6	99.2	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A120724

Included Lab Sample IDs: 2426041, 2426043, 2426045, 2426047

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.9	93.1	P/P	90 - 110
Organic Carbon	95.4	94.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A120726

Included Lab Sample IDs: 2426070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	90.8	96.7	P/P	60 - 160
Sucralose	87.6	94.9	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A120727

Included Lab Sample IDs: 2426070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	108	97.6	P/P	60 - 160
Endothall	89.9	86.8	P/P	60 - 160
Glufosinate	94.9	91.5	P/P	60 - 160
Glyphosate	93.6	99.0	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A120734

Included Lab Sample IDs: 2426070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	107	106	P/P	50 - 150
2,4,5-T	101	108	P/P	50 - 150
Acetaminophen	127	127	P/P	60 - 160
Acetamiprid	125	127	P/P	50 - 150
Afidopyropen	118	116	P/P	50 - 150
Benzovindiflupyr	120	136	P/P	50 - 150
Carbamazepine	137	144	P/P	60 - 150
Clothianidin	139	137	P/P	60 - 150
Dinotefuran	140	133	P/P	50 - 150
Diuron	130	130	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A120734
Included Lab Sample IDs: 2426070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fenuron	126	125	P/P	60 - 150
Fluridone	135	142	P/P	60 - 160
Hydrocodone	119	133	P/P	60 - 150
Ibuprofen	109	73.9	P/P	50 - 160
Imazapyr	117	114	P/P	50 - 150
Imidacloprid	106	113	P/P	60 - 150
Linuron	111	124	P/P	60 - 150
Mandestrobin	131	136	P/P	50 - 150
MCPP	117	105	P/P	50 - 150
Naproxen	142	82.8	P/P	50 - 160
Primidone	116	124	P/P	60 - 150
Pyraclostrobin	125	134	P/P	60 - 150
Silvex	112	121	P/P	50 - 150
Thiamethoxam	125	123	P/P	50 - 150
Tolfenpyrad	117	121	P/P	60 - 150
Triclopyr	112	111	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A120735
Included Lab Sample IDs: 2426070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	80.4	87.7	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A120783
Included Lab Sample IDs: 2426045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.7	96.6	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)	98.3				1.22	
	Color (true)	99.9				0.295	
EPA 180.1 Rev. 2.0	Turbidity	101				3.91	
EPA 200.7 Rev. 4.4	Calcium	96.6	95.7	101			1.64
	Iron	94.6	98.7	99.6	103		0.869
	Magnesium	96.5	95.9	104			1.73
	Potassium	98.4	97.5	105			0.803
	Sodium	101	102	107			0.711
	Strontium	96.4	99.6	100	105		0.522
	Tin	96.1	94.5	91.5	98.4		3.17
	Titanium	98.0	95.2	95.3	100		0.0979
	Vanadium	98.1	94.3	94.5	101		0.230
	Zinc	96.9	92.7	93.1	97.9		0.488
EPA 200.8 Rev. 5.4	Aluminum	102	102	103	103		0.963
	Antimony	101	101	101	102		0.116
	Arsenic	102	102	102	101		0.0813
	Barium	102	103	104	103		0.408
	Beryllium	96.3	96.8	98.5	90.6		1.67
	Boron	106	106	108	108		1.39
	Cadmium	99.9	100	101	99.6		0.480
	Chromium	97.8	99.0	99.2	99.0		0.176
	Cobalt	100	99.1	99.1	98.8		0.0474
	Copper	93.9	98.3	91.9	90.7		1.38
	Lead	103	104	105	103		0.625
	Manganese	94.4	90.9	94.1	93.2		1.68
	Molybdenum	100	99.8	99.8	99.2		0.0305
	Nickel	102	101	102	99.1		1.24
	Selenium	100	102	100	98.0		1.59
	Silver	113	110	109	108		0.833
	Thallium	101	106	106	105		0.528
EPA 300.0 Rev. 2.1	Chloride	98.4	96.8	99.6		0.335	
	Sulfate	97.2	93.3	99.7		0.0274	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	99.0	98.6			0.372
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.5	102	93.4			5.34
	Kjeldahl Nitrogen	101	99.3	106			6.77
	Kjeldahl Nitrogen	106	97.4	104			5.80
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	91.5				0.521
	NO2NO3-N	98.5	99.0	99.0			0.0
EPA 365.1 Rev. 2.0	Total-P	98.5	99.7	101			1.34
EPA 8321B	2,4-D	81.8	118	113			4.43
	2,4,5-T	70.3	104	109			4.92
	Acesulfame K	94.9	109	118			7.96
	Acetaminophen	79.0	99.4	98.4			1.09
	Acetamiprid	79.5	60.0	61.8			3.04
	Afidopyropen	57.9	66.9	73.3			9.12
	AMPA	57.2	61.9	66.9			5.89
	Bentazon	126	117	119			1.48
	Benzovindiflupyr	78.2	80.7	79.7			1.21
	Carbamazepine	69.8	50.0	55.9			11.1
	Clothianidin	88.8	87.2	84.9			2.58
	Dinotefuran	88.5	67.5	82.3			19.8
	Diuron	44.0	31.6	34.4			8.62
	Endothall	91.1	128	127			0.873
	Fenuron	96.2	61.1	64.6			5.50

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	Fluridone	98.8	87.9	90.3			2.69
	Glufosinate	104	82.2	77.1			6.34
	Glyphosate	110	116	111			4.09
	Hydrocodone	80.8	60.2	62.3			3.44
	Ibuprofen	72.5	69.8	66.2			5.32
	Imazapyr	79.8	98.5	95.7			2.90
	Imidacloprid	73.2	115	120			4.25
	Linuron	52.1	52.8	50.5			4.34
	Mandestrobin	81.4	80.0	85.3			6.39
	MCPP	86.2	123	124			0.402
	Naproxen	69.0	128	128			0.122
	Primidone	68.7	78.0	75.2			3.65
	Pyraclostrobin	74.0	77.3	76.6			0.916
	Silvex	87.9	114	116			2.05
	Sucralose	96.0	104	94.5			9.11
	Thiamethoxam	98.3	76.5	76.7			0.286
	Tolfenpyrad	56.8	57.7	56.4			2.18
	Triclopyr	70.8	103	102			0.638
SM 2320 B-2011	Total Alkalinity	93.6				0.713	
SM 2540 C-2015	TDS	98.8				8.45	
SM 2540 D-2015	TSS	94.9					
SM 4500-F- C-2011	Fluoride	97.5	99.1	98.6			0.498
SM 5310 B-2011	Organic Carbon	98.4	93.9	93.3			0.422

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2426040, 2426042, 2426044, 2426046
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2426040, 2426042, 2426044, 2426046
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2426071
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2426071
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2426040, 2426042, 2426044, 2426046
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2426040, 2426042, 2426044, 2426046
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2426041, 2426043, 2426045, 2426047
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2426041, 2426043, 2426045, 2426047
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2426041, 2426043, 2426045, 2426047
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2426041, 2426043, 2426045, 2426047
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2426070
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2426040, 2426042, 2426044, 2426046
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2426071
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2426040, 2426042, 2426044, 2426046
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2426040, 2426042, 2426044, 2426046
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2426040, 2426042, 2426044, 2426046
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2426041, 2426043, 2426045, 2426047

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	07/21/2023			07/21/2023 14:48	Anna M. Plaviak	2426040
	07/21/2023			07/21/2023 14:53	Anna M. Plaviak	2426042
	07/21/2023			07/21/2023 15:04	Anna M. Plaviak	2426044
	07/21/2023			07/21/2023 15:05	Anna M. Plaviak	2426046
EPA 180.1 Rev. 2.0	07/21/2023			07/21/2023 14:04	Alexis Price	2426040
	07/21/2023			07/21/2023 14:05	Alexis Price	2426042, 2426044
	07/21/2023			07/21/2023 14:06	Alexis Price	2426046
EPA 200.7 Rev. 4.4	07/21/2023	07/24/2023 12:50	George D Taylor	07/27/2023 21:34	Samatha Luckman	2426071
EPA 200.8 Rev. 5.4	07/21/2023	07/24/2023 12:50	George D Taylor	07/25/2023 23:38	Conrad Hartmann	2426071
	07/21/2023	07/24/2023 12:50	George D Taylor	07/26/2023 18:08	Emily M Philpot	2426071
	07/21/2023	07/24/2023 12:50	George D Taylor	07/27/2023 16:04	Conrad Hartmann	2426071
EPA 300.0 Rev. 2.1	07/21/2023			07/26/2023 19:50	James L Waggeberby	2426040
	07/21/2023			07/26/2023 20:05	James L Waggeberby	2426042
	07/21/2023			07/26/2023 20:20	James L Waggeberby	2426044
	07/21/2023			07/26/2023 20:35	James L Waggeberby	2426046
EPA 350.1 Rev. 2.0	07/21/2023			07/28/2023 12:24	Ping Hua	2426041
	07/21/2023			07/28/2023 12:31	Ping Hua	2426045
	07/21/2023			07/28/2023 12:32	Ping Hua	2426047
	07/21/2023			07/28/2023 13:18	Ping Hua	2426043
EPA 351.2 Rev. 2.0	07/21/2023	07/25/2023 12:24	Simonne.V. Calhoun	07/26/2023 14:02	Ping Hua	2426041
	07/21/2023	07/25/2023 12:24	Simonne.V. Calhoun	07/26/2023 14:04	Ping Hua	2426043
	07/21/2023	07/25/2023 12:24	Simonne.V. Calhoun	07/26/2023 14:10	Ping Hua	2426047
	07/21/2023	07/31/2023 10:34	Dana G. Hughes	08/02/2023 10:36	Samantha L Bates	2426045
EPA 353.2 Rev. 2.0	07/21/2023			07/26/2023 10:03	Beverly Y. Sanders	2426041
	07/21/2023			07/26/2023 10:05	Beverly Y. Sanders	2426043
	07/21/2023			07/26/2023 10:19	Beverly Y. Sanders	2426045
	07/21/2023			07/26/2023 10:20	Beverly Y. Sanders	2426047
EPA 365.1 Rev. 2.0	07/21/2023	07/25/2023 14:03	Alexis Price	07/26/2023 11:47	Simonne.V. Calhoun	2426045
	07/21/2023	07/25/2023 14:03	Alexis Price	07/26/2023 11:48	Simonne.V. Calhoun	2426047
	07/21/2023	07/25/2023 14:03	Alexis Price	07/27/2023 15:19	James L Waggeberby	2426041
	07/21/2023	07/25/2023 14:03	Alexis Price	07/27/2023 15:22	James L Waggeberby	2426043
EPA 8321B	07/21/2023	07/25/2023 14:00	Hoor Shaik	07/26/2023 00:13	Juyoung Kim	2426070
	07/21/2023	07/25/2023 14:00	Hoor Shaik	07/28/2023 16:28	Juyoung Kim	2426070
	07/21/2023	07/26/2023 01:00	Hana Lee	07/26/2023 02:07	Tae K Lee	2426070
	07/21/2023	07/26/2023 01:00	Hana Lee	07/26/2023 11:51	Tae K Lee	2426070
SM 2320 B-2011	07/21/2023			07/25/2023 04:51	Dale L. Simmons	2426040
	07/21/2023			07/25/2023 05:03	Dale L. Simmons	2426042
	07/21/2023			07/25/2023 05:15	Dale L. Simmons	2426044
	07/21/2023			07/25/2023 05:28	Dale L. Simmons	2426046
SM 2340 B-2011	07/21/2023			07/27/2023 21:34	Samatha Luckman	2426071

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-2015	07/21/2023			07/25/2023 15:46	Yijie Li	2426040, 2426042, 2426044, 2426046
SM 2540 D-2015	07/21/2023			07/25/2023 15:46	Yijie Li	2426040, 2426042, 2426044, 2426046
SM 4500-F- C-2011	07/21/2023			07/25/2023 04:51	Dale L. Simmons	2426040
	07/21/2023			07/25/2023 05:03	Dale L. Simmons	2426042
	07/21/2023			07/25/2023 05:15	Dale L. Simmons	2426044
	07/21/2023			07/25/2023 05:28	Dale L. Simmons	2426046
SM 5310 B-2011	07/21/2023			07/28/2023 21:33	Judith K. Clark	2426041
	07/21/2023			07/28/2023 21:47	Judith K. Clark	2426043
	07/21/2023			07/28/2023 22:01	Judith K. Clark	2426045
	07/21/2023			07/28/2023 22:47	Judith K. Clark	2426047