

Chemical Analysis Report

SO-DIST-2023-08-18-02

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

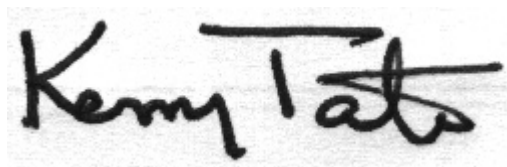
Event Description: **2023 SMP: Glades Slough**
Request ID: **RQ-2023-07-31-23**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 314
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 11-SEP-2023 10:51

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: FENCELINE DRAIN AT BLUE HEAD RANCH

Collection Date/Time: 08/17/2023 10:30

Field ID: G4SD0193

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432163	EPA 200.7 Rev. 4.4	Calcium	12.0		mg/L	P434124	
		Iron	2.64E+03		ug/L	P434124	
		Magnesium	4.11		mg/L	P434124	
		Potassium	0.67	I	mg/L	P434124	
		Sodium	15.1		mg/L	P434124	
		Strontium	81.1		ug/L	P434124	
		Tin	3.0	U	ug/L	P434124	
		Titanium	1.5	I	ug/L	P434124	
		Vanadium	2.0	U	ug/L	P434124	
		Zinc	5.0	U	ug/L	P434124	
	EPA 200.8 Rev. 5.4	Aluminum	277		ug/L	P434124	
		Antimony	0.074	I	ug/L	P434124	
		Arsenic	1.57		ug/L	P434124	
		Barium	11.0		ug/L	P434124	
		Beryllium	0.021	I	ug/L	P434124	
		Boron	29.2		ug/L	P434124	
		Cadmium	0.020	U	ug/L	P434124	
		Chromium	0.88	I	ug/L	P434124	
		Cobalt	0.285		ug/L	P434124	
		Copper	0.76	I	ug/L	P434124	
		Lead	0.52		ug/L	P434124	
		Manganese	21.8		ug/L	P434124	
		Molybdenum	0.26	I	ug/L	P434124	
		Nickel	0.56	I	ug/L	P434124	
		Selenium	0.22	I	ug/L	P434124	
		Silver	0.010	U	ug/L	P434124	
		Thallium	0.10	U	ug/L	P434124	
	SM 2340 B-2011	Hardness	46.8		mg/L	P434124	

Sample Location: GATOR SLOUGH AT US27

Collection Date/Time: 08/17/2023 11:35

Field ID: G4SD0214

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432141	DEP SOP: NU-094-1	Color (true)	420		PCU	P434060	
	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P434064	
	EPA 300.0 Rev. 2.1	Chloride	7.1		mg Cl/L	P434199	
		Sulfate	1.0		mg SO4/L	P434202	
	SM 2320 B-2011	Total Alkalinity	4.1		mg CaCO3/L	P434416	
	SM 2540 C-2015	TDS	95		mg/L	P434584	
	SM 2540 D-2015	TSS	3	I	mg/L	P434581	
	SM 4500-F- C-2011	Fluoride	0.032	I	mg F/L	P434144	
2432144	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P434318	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P434561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P434570	
	EPA 365.1 Rev. 2.0	Total-P	0.48		mg P/L	P434113	
	SM 5310 B-2011	Organic Carbon	35		mg C/L	P434339	

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: BOOTHEELCREEKEASTBRANCH

Collection Date/Time: 08/17/2023 12:00

Field ID: G4SD0105

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432142	DEP SOP: NU-094-1	Color (true)	560		PCU	P434061	
	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P434064	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P434199	
		Sulfate	0.77		mg SO4/L	P434202	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P434416	
	SM 2540 C-2015	TDS	136		mg/L	P434584	
	SM 2540 D-2015	TSS	4	I	mg/L	P434581	
	SM 4500-F- C-2011	Fluoride	0.053	I	mg F/L	P434144	
2432145	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P434318	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P434561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P434570	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P434113	
	SM 5310 B-2011	Organic Carbon	55		mg C/L	P434339	

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: RAINEY SLOUGH AT FARABEE RD

Collection Date/Time: 08/17/2023 12:35

Field ID: G4SD0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432164	EPA 200.7 Rev. 4.4	Calcium	6.43		mg/L	P434124	
		Iron	1.17E+03		ug/L	P434124	
		Magnesium	3.13		mg/L	P434124	
		Potassium	0.31	I	mg/L	P434124	
		Sodium	12.6		mg/L	P434124	
		Strontium	84.3		ug/L	P434124	
		Tin	3.0	U	ug/L	P434124	
		Titanium	2.1	I	ug/L	P434124	
		Vanadium	2.0	U	ug/L	P434124	
		Zinc	5.0	U	ug/L	P434124	
	EPA 200.8 Rev. 5.4	Aluminum	421		ug/L	P434124	
		Antimony	0.055	I	ug/L	P434124	
		Arsenic	1.74		ug/L	P434124	
		Barium	13.7		ug/L	P434124	
		Beryllium	0.075		ug/L	P434124	
		Boron	33.9		ug/L	P434124	
		Cadmium	0.020	U	ug/L	P434124	
		Chromium	1.2	I	ug/L	P434124	
		Cobalt	0.352		ug/L	P434124	
		Copper	0.55	I	ug/L	P434124	
		Lead	0.39	I	ug/L	P434124	
		Manganese	11.7		ug/L	P434124	
		Molybdenum	0.15	U	ug/L	P434124	
		Nickel	0.82	I	ug/L	P434124	
		Selenium	0.20	U	ug/L	P434124	
		Silver	0.010	U	ug/L	P434124	
		Thallium	0.10	U	ug/L	P434124	
	SM 2340 B-2011	Hardness	28.9		mg/L	P434124	

Sample Location: JOHNNENRYSLOUGH ATCR731

Collection Date/Time: 08/17/2023 12:50

Field ID: G4SD0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432147	DEP SOP: NU-094-1	Color (true)	440		PCU	P434061	
	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P434064	
	EPA 300.0 Rev. 2.1	Chloride	42		mg Cl/L	P434199	
		Sulfate	8.6		mg SO4/L	P434202	
	SM 2320 B-2011	Total Alkalinity	31		mg CaCO3/L	P434416	
	SM 2540 C-2015	TDS	205		mg/L	P434584	
	SM 2540 D-2015	TSS	5	I	mg/L	P434581	
2432148	SM 4500-F- C-2011	Fluoride	0.085	I	mg F/L	P434144	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P434318	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.6		mg N/L	P434561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P434570	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P434209	
2432162	SM 5310 B-2011	Organic Carbon	41		mg C/L	P434339	
	EPA 8321B	2,4-D	0.011		ug/L	P434161	
		Acesulfame K	0.10	U	ug/L	P434027	
		2,4,5-T	0.0040	U	ug/L	P434161	
		AMPA	0.10	U	ug/L	P434027	MS
		Acetaminophen	0.0080	U	ug/L	P434161	
		Endothall	0.25	U	ug/L	P434027	
		Acetamiprid	0.0020	U	ug/L	P434161	MS, RPD
		Glufosinate	0.10	U	ug/L	P434027	
		Glyphosate	0.10	U	ug/L	P434027	
		Afidopyropen	0.0020	U	ug/L	P434161	
		Bentazon	8.0E-04	U	ug/L	P434161	
		Sucralose	0.013	I	ug/L	P434027	
		Benzovindiflupyr	0.0020	U	ug/L	P434161	
		Carbamazepine	8.0E-04	U	ug/L	P434161	
		Clothianidin	0.0020	U	ug/L	P434161	
		Dinotefuran	0.0020	U	ug/L	P434161	MS
		Diuron	0.0020	U	ug/L	P434161	
		Fenuron	0.032	U	ug/L	P434161	MS
		Fluridone	8.0E-04	U	ug/L	P434161	
		Imazapyr	0.0040	U	ug/L	P434161	
		Hydrocodone	0.0020	U	ug/L	P434161	
		Ibuprofen	0.080	U	ug/L	P434161	
		Imidacloprid	0.0040	I	ug/L	P434161	
		Linuron	0.0040	U	ug/L	P434161	
		Mandestrobin	0.0020	U	ug/L	P434161	
		MCPP	0.0020	U	ug/L	P434161	
		Naproxen	0.0080	U	ug/L	P434161	
		Primidone	0.0040	U	ug/L	P434161	
		Pyraclostrobin	0.0020	U	ug/L	P434161	
		Silvex	0.0040	U	ug/L	P434161	
		Thiamethoxam	0.0020	U	ug/L	P434161	

Field ID: G4SD0215

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432162	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P434161	
		Triclopyr	0.0040	U	ug/L	P434161	

Ref. Method and Comment:
SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 8321B: MS accuracy for some analytes could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: GOPHER GULLY AT US27

Collection Date/Time: 08/17/2023 13:20

Field ID: G4SD0216

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2432143	DEP SOP: NU-094-1	Color (true)	740		PCU	P434061	
	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P434064	
	EPA 300.0 Rev. 2.1	Chloride	45		mg Cl/L	P434199	
		Sulfate	0.93		mg SO4/L	P434202	
	SM 2320 B-2011	Total Alkalinity	10		mg CaCO3/L	P434416	
	SM 2540 C-2015	TDS	202		mg/L	P434584	
	SM 2540 D-2015	TSS	6	I	mg/L	P434581	
	SM 4500-F- C-2011	Fluoride	0.12		mg F/L	P434144	
2432146	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P434318	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.4		mg N/L	P434561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P434570	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P434113	
	SM 5310 B-2011	Organic Carbon	60		mg C/L	P434339	

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: P434060

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P434061

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434064

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434124

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: P434124

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: P434199

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434202

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434318

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434561

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434570

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434113

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434209

Component	Result	Code	Units
Total-P	0.010	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P434027

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P434161

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: P434416

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

Reference Method: SM 2540 C-2015

Batch ID: P434584

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015

Batch ID: P434581

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011

Batch ID: P434144

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P434339

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: P434060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P434061

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	99.4		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434124

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.3		P	85 - 115
Antimony	98.5		P	85 - 115
Arsenic	93.5		P	85 - 115
Barium	100		P	85 - 115
Beryllium	91.7		P	85 - 115
Boron	100		P	85 - 115
Cadmium	97.0		P	85 - 115
Chromium	92.5		P	85 - 115
Cobalt	90.0		P	85 - 115
Copper	93.8		P	85 - 115
Lead	95.4		P	85 - 115
Manganese	97.3		P	85 - 115
Molybdenum	94.2		P	85 - 115
Nickel	89.8		P	85 - 115
Selenium	96.2		P	85 - 115
Silver	108		P	85 - 115
Thallium	96.3		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434199

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434202

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434318

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434561

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434113

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434209

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

Reference Method: EPA 8321B
Batch ID: P434027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	103		P	40 - 150
AMPA	139		P	40 - 150
Endothall	85.5		P	40 - 150
Glufosinate	82.2		P	40 - 150
Glyphosate	85.3		P	40 - 150
Sucralose	111		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P434161

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	87.1		P	40 - 150
2,4,5-T	92.5		P	40 - 150
Acetaminophen	104		P	30 - 150
Acetamiprid	106		P	40 - 150
Afidopyropen	82.8		P	30 - 150
Bentazon	135		P	30 - 150
Benzovindiflupyr	119		P	40 - 150
Carbamazepine	92.6		P	40 - 150
Clothianidin	104		P	40 - 150
Dinotefuran	102		P	40 - 150
Diuron	104		P	40 - 150
Fenuron	113		P	40 - 150
Fluridone	95.0		P	40 - 150
Hydrocodone	110		P	40 - 150
Ibuprofen	79.7		P	40 - 150
Imazapyr	87.9		P	40 - 150
Imidacloprid	93.9		P	40 - 150
Linuron	86.4		P	40 - 150
Mandestrobin	125		P	40 - 150
MCPP	98.8		P	40 - 150
Naproxen	75.9		P	40 - 150
Primidone	98.0		P	40 - 150
Pyraclostrobin	96.8		P	40 - 150
Silvex	92.4		P	40 - 150
Thiamethoxam	107		P	40 - 150
Tolfenpyrad	64.6		P	30 - 150
Triclopyr	110		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P434416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.2		P	92 - 105

Reference Method: SM 2540 C-2015

Batch ID: P434584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	96.8		P	90 - 110

Reference Method: SM 2540 D-2015

Batch ID: P434581

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	93.9		P	85 - 106

Reference Method: SM 4500-F- C-2011

Batch ID: P434144

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P434339

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P434124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432078	Calcium	106	102	P/P	80 - 120
2432078	Iron	105	103	P/P	80 - 120
2432078	Magnesium	104	103	P/P	80 - 120
2432078	Potassium	103	99.2	P/P	80 - 120
2432078	Sodium	97.9		P	80 - 120
2432078	Strontium	100	98.6	P/P	80 - 120
2432078	Tin	105	100	P/P	80 - 120
2432078	Titanium	104	101	P/P	80 - 120
2432078	Vanadium	104	101	P/P	80 - 120
2432078	Zinc	106	103	P/P	80 - 120
2432154	Calcium	99.2		P	80 - 120
2432154	Iron	100		P	80 - 120
2432154	Magnesium	98.6		P	80 - 120
2432154	Potassium	96.9		P	80 - 120
2432154	Sodium	99.3		P	80 - 120
2432154	Strontium	96.1		P	80 - 120
2432154	Tin	96.6		P	80 - 120
2432154	Titanium	96.5		P	80 - 120
2432154	Vanadium	98.4		P	80 - 120
2432154	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P434124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432078	Aluminum	97.1	98.2	P/P	80 - 120
2432078	Antimony	98.6	97.5	P/P	80 - 120
2432078	Arsenic	94.0	93.6	P/P	80 - 120
2432078	Barium	99.1	99.0	P/P	80 - 120
2432078	Beryllium	92.2	91.6	P/P	80 - 120
2432078	Boron	101	101	P/P	80 - 120
2432078	Cadmium	97.1	95.9	P/P	80 - 120
2432078	Chromium	93.1	93.3	P/P	80 - 120
2432078	Cobalt	89.4	89.4	P/P	80 - 120
2432078	Copper	95.4	95.6	P/P	80 - 120
2432078	Lead	96.1	97.1	P/P	80 - 120
2432078	Manganese	96.5	95.8	P/P	80 - 120
2432078	Molybdenum	94.8	94.6	P/P	80 - 120
2432078	Nickel	89.7	89.2	P/P	80 - 120
2432078	Selenium	97.3	94.1	P/P	80 - 120
2432078	Silver	106	105	P/P	80 - 120
2432078	Thallium	98.3	99.2	P/P	80 - 120
2432154	Aluminum	98.2		P	80 - 120
2432154	Antimony	97.7		P	80 - 120
2432154	Arsenic	92.2		P	80 - 120
2432154	Barium	98.1		P	80 - 120
2432154	Beryllium	89.2		P	80 - 120
2432154	Boron	102		P	80 - 120
2432154	Cadmium	97.0		P	80 - 120
2432154	Chromium	91.9		P	80 - 120
2432154	Cobalt	91.1		P	80 - 120
2432154	Copper	92.1		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432154	Lead	95.0		P	80 - 120
2432154	Manganese	95.6		P	80 - 120
2432154	Molybdenum	94.5		P	80 - 120
2432154	Nickel	92.9		P	80 - 120
2432154	Selenium	93.7		P	80 - 120
2432154	Silver	105		P	80 - 120
2432154	Thallium	98.5		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432095	Chloride	102		P	90 - 110
2432147	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432095	Sulfate	99.8		P	90 - 110
2432147	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432145	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432122	Kjeldahl Nitrogen	109	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432101	NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432099	Total-P	107	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434209

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2431933	Total-P	104	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P434027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2431835	Acesulfame K	105	90.9	P/P	40 - 150
2431835	AMPA	159	158	F/F	40 - 150
2431835	Endothall	100	91.4	P/P	40 - 150
2431835	Glufosinate	84.8	79.7	P/P	40 - 150
2431835	Glyphosate	55.7	66.7	P/P	40 - 150
2431835	Sucralose	113	107	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P434161

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2431707	2,4-D	84.7	87.4	P/P	40 - 150
2431707	2,4,5-T	115	128	P/P	40 - 150
2431707	Acetaminophen	68.5	72.9	P/P	30 - 150
2431707	Acetamiprid	43.8	25.6	P/F	40 - 150
2431707	Afidopyropen	76.8	59.9	P/P	30 - 150
2431707	Benzovindiflupyr	102	99.8	P/P	40 - 150
2431707	Carbamazepine	48.6	51.0	P/P	40 - 150
2431707	Clothianidin	54.3	54.3	P/P	40 - 150
2431707	Dinotefuran	31.9	33.4	F/F	40 - 150
2431707	Diuron	44.5	43.5	P/P	40 - 150
2431707	Fenuron	25.7	25.6	F/F	40 - 150
2431707	Fluridone	55.9	53.1	P/P	40 - 150
2431707	Hydrocodone	40.9	41.3	P/P	40 - 150
2431707	Ibuprofen	63.1	67.4	P/P	40 - 150
2431707	Imidacloprid	74.8	75.5	P/P	40 - 150
2431707	Linuron	59.3	50.9	P/P	40 - 150
2431707	Mandestrobin	98.6	95.0	P/P	40 - 150
2431707	MCCP	116	117	P/P	40 - 150
2431707	Naproxen	108	96.8	P/P	40 - 150
2431707	Primidone	49.1	45.8	P/P	40 - 150
2431707	Pyraclostrobin	87.5	87.4	P/P	40 - 150
2431707	Silvex	135	136	P/P	40 - 150
2431707	Thiamethoxam	45.5	46.5	P/P	40 - 150
2431707	Tolfenpyrad	55.7	62.1	P/P	30 - 150
2431707	Triclopyr	134	125	P/P	40 - 150

Reference Method: SM 4500-F- C-2011
Batch ID: P434144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432063	Fluoride	97.4	98.6	P/P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P434339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2432102	Organic Carbon	98.0	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P434060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432066	Color (true)	1.24	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P434061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432199	Color (true)	0.923	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P434064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432022	Turbidity	5.11	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P434124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432078	Calcium	2.49	Spike	P	0 - 20
2432078	Iron	1.01	Spike	P	0 - 20
2432078	Magnesium	1.16	Spike	P	0 - 20
2432078	Potassium	2.95	Spike	P	0 - 20
2432078	Sodium	1.82	Spike	P	0 - 20
2432078	Strontium	1.44	Spike	P	0 - 20
2432078	Tin	4.19	Spike	P	0 - 20
2432078	Titanium	2.76	Spike	P	0 - 20
2432078	Vanadium	2.92	Spike	P	0 - 20
2432078	Zinc	2.28	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432078	Aluminum	1.01	Spike	P	0 - 20
2432078	Antimony	1.04	Spike	P	0 - 20
2432078	Arsenic	0.482	Spike	P	0 - 20
2432078	Barium	0.136	Spike	P	0 - 20
2432078	Beryllium	0.705	Spike	P	0 - 20
2432078	Boron	0.124	Spike	P	0 - 20
2432078	Cadmium	1.24	Spike	P	0 - 20
2432078	Chromium	0.266	Spike	P	0 - 20
2432078	Cobalt	0.0368	Spike	P	0 - 20
2432078	Copper	0.215	Spike	P	0 - 20
2432078	Lead	1.03	Spike	P	0 - 20
2432078	Manganese	0.683	Spike	P	0 - 20
2432078	Molybdenum	0.221	Spike	P	0 - 20
2432078	Nickel	0.636	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P434124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432078	Selenium	3.33	Spike	P	0 - 20
2432078	Silver	0.675	Spike	P	0 - 20
2432078	Thallium	0.894	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432095	Chloride	0.932	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P434202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432095	Sulfate	0.879	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432145	Ammonia-N	0.125	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432122	Kjeldahl Nitrogen	6.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432101	NO2NO3-N	0.948	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432099	Total-P	1.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434209

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431933	Total-P	1.22	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P434027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431835	Acesulfame K	14.1	Spike	P	0 - 30
2431835	AMPA	0.213	Spike	P	0 - 30
2431835	Endothall	9.39	Spike	P	0 - 30
2431835	Glufosinate	6.29	Spike	P	0 - 30
2431835	Glyphosate	17.9	Spike	P	0 - 30
2431835	Sucralose	6.09	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P434161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2431707	2,4-D	2.90	Spike	P	0 - 30
2431707	2,4,5-T	10.7	Spike	P	0 - 30
2431707	Acetaminophen	6.23	Spike	P	0 - 30
2431707	Acetamiprid	52.3	Spike	F	0 - 30
2431707	Afidopyropen	24.7	Spike	P	0 - 30
2431707	Bentazon	4.63	Spike	P	0 - 30
2431707	Benzovindiflupyr	2.55	Spike	P	0 - 30
2431707	Carbamazepine	4.99	Spike	P	0 - 30
2431707	Clothianidin	0.0186	Spike	P	0 - 30
2431707	Dinotefuran	4.63	Spike	P	0 - 30
2431707	Diuron	2.30	Spike	P	0 - 30
2431707	Fenuron	0.216	Spike	P	0 - 30
2431707	Fluridone	5.00	Spike	P	0 - 30
2431707	Hydrocodone	0.866	Spike	P	0 - 30
2431707	Ibuprofen	6.53	Spike	P	0 - 30
2431707	Imazapyr	0.0360	Spike	P	0 - 30
2431707	Imidacloprid	0.853	Spike	P	0 - 30
2431707	Linuron	15.3	Spike	P	0 - 30
2431707	Mandestrobin	3.69	Spike	P	0 - 30
2431707	MCPP	0.802	Spike	P	0 - 30
2431707	Naproxen	10.6	Spike	P	0 - 30
2431707	Primidone	7.02	Spike	P	0 - 30
2431707	Pyraclostrobin	0.173	Spike	P	0 - 30
2431707	Silvex	0.931	Spike	P	0 - 30
2431707	Thiamethoxam	2.07	Spike	P	0 - 30
2431707	Tolfenpyrad	10.9	Spike	P	0 - 30
2431707	Triclopyr	7.27	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P434416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432063	Total Alkalinity	0.737	Sample	P	0 - 3.9

Reference Method: SM 2540 C-2015
Batch ID: P434584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432097	TDS	5.41	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P434144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432063	Fluoride	1.01	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P434339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2432102	Organic Carbon	0.744	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2432162
Field Sample ID: G4SD0215

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	68.7	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.2	P	30 - 160
EPA 8321B	Carbamazepine-d10	53.0	P	30 - 160
EPA 8321B	Diuron-d6	30.1	P	30 - 160
EPA 8321B	Endothall-d6	130	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	88.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	63.0	P	30 - 160
EPA 8321B	Primidone-d5	39.9	P	30 - 160
EPA 8321B	Sucralose-d6	120	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A121128

Included Lab Sample IDs: 2432141, 2432142, 2432143, 2432147

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A121130

Included Lab Sample IDs: 2432141, 2432142, 2432143, 2432147

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

Reference Method: SM 4500-F- C-2011

Run ID: A121155

Included Lab Sample IDs: 2432141, 2432142, 2432143, 2432147

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121162

Included Lab Sample IDs: 2432144, 2432145, 2432146

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A121182

Included Lab Sample IDs: 2432141, 2432142, 2432143, 2432147

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

Reference Method: EPA 8321B

Run ID: A121187

Included Lab Sample IDs: 2432162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	100	115	P/P	60 - 160
Sucralose	119	120	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A121188

Included Lab Sample IDs: 2432163, 2432164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.8	97.0	P/P	90 - 110
Antimony	95.5	94.3	P/P	90 - 110
Arsenic	93.3	92.4	P/P	90 - 110
Barium	97.4	96.0	P/P	90 - 110
Boron	99.7	97.5	P/P	90 - 110
Cadmium	96.3	95.5	P/P	90 - 110
Chromium	94.8	94.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A121188

Included Lab Sample IDs: 2432163, 2432164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	92.0	90.5	P/P	90 - 110
Manganese	97.1	96.1	P/P	90 - 110
Molybdenum	92.7	92.8	P/P	90 - 110
Selenium	96.1	96.3	P/P	90 - 110
Silver	92.1	90.8	P/P	90 - 110
Thallium	93.3	91.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A121190

Included Lab Sample IDs: 2432162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	79.0	88.6	P/P	60 - 160
Endothall	84.0	89.6	P/P	60 - 160
Glufosinate	105	91.4	P/P	60 - 160
Glyphosate	77.8	83.1	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A121209

Included Lab Sample IDs: 2432163, 2432164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	95.8	95.3	P/P	90 - 110
Iron	100	96.2	P/P	90 - 110
Magnesium	100	96.6	P/P	90 - 110
Potassium	99.4	95.2	P/P	90 - 110
Sodium	98.0	96.2	P/P	90 - 110
Strontium	98.7	95.3	P/P	90 - 110
Tin	99.1	96.5	P/P	90 - 110
Titanium	99.0	95.5	P/P	90 - 110
Vanadium	99.2	96.3	P/P	90 - 110
Zinc	100	98.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A121217

Included Lab Sample IDs: 2432163, 2432164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Beryllium	94.0	91.9	P/P	90 - 110
Lead	92.9	91.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121224

Included Lab Sample IDs: 2432148

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A121231

Included Lab Sample IDs: 2432144, 2432145, 2432146, 2432148

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

Reference Method: SM 5310 B-2011

Run ID: A121240

Included Lab Sample IDs: 2432144, 2432145, 2432146, 2432148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A121269

Included Lab Sample IDs: 2432163, 2432164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cobalt	99.6	98.3	P/P	90 - 110
Nickel	98.1	96.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A121272

Included Lab Sample IDs: 2432141, 2432142, 2432143, 2432147

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.5	97.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A121350

Included Lab Sample IDs: 2432162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	84.8	82.7	P/P	50 - 150
2,4,5-T	90.2	91.5	P/P	50 - 150
Acetaminophen	109	105	P/P	60 - 160
Acetamiprid	120	119	P/P	50 - 150
Afidopyropen	120	120	P/P	50 - 150
Bentazon	128	132	P/P	50 - 160
Benzovindiflupyr	115	117	P/P	50 - 150
Carbamazepine	110	112	P/P	60 - 150
Clothianidin	106	114	P/P	60 - 150
Dinotefuran	107	112	P/P	50 - 150
Diuron	105	108	P/P	60 - 160
Fenuron	113	113	P/P	60 - 150
Fluridone	108	106	P/P	60 - 160
Hydrocodone	126	128	P/P	60 - 150
Ibuprofen	102	91.0	P/P	50 - 160
Imazapyr	98.9	99.0	P/P	50 - 150
Imidacloprid	99.7	99.0	P/P	60 - 150
Linuron	100	109	P/P	60 - 150
Mandestrobin	116	124	P/P	50 - 150
MCPP	84.3	88.5	P/P	50 - 150
Naproxen	67.6	121	P/P	50 - 160
Primidone	99.3	105	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A121350
Included Lab Sample IDs: 2432162

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	118	120	P/P	60 - 150
Silvex	90.7	94.4	P/P	50 - 150
Thiamethoxam	118	121	P/P	50 - 150
Tolfenpyrad	105	106	P/P	60 - 150
Triclopyr	86.6	79.8	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A121383
Included Lab Sample IDs: 2432144, 2432145, 2432146, 2432148

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	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)	99.4				1.24	
	Color (true)	100				0.923	
EPA 180.1 Rev. 2.0	Turbidity	99.4				5.11	
EPA 200.7 Rev. 4.4	Calcium	105	99.2	106	102		2.49
	Iron	105	105	103	100		1.01
	Magnesium	105	104	103	98.6		1.16
	Potassium	103	103	99.2	96.9		2.95
	Sodium	99.9	97.9	99.3			1.82
	Strontium	101	100	98.6	96.1		1.44
	Tin	105	105	100	96.6		4.19
	Titanium	102	104	101	96.5		2.76
	Vanadium	101	104	101	98.4		2.92
	Zinc	103	106	103	101		2.28
EPA 200.8 Rev. 5.4	Aluminum	97.3	97.1	98.2	98.2		1.01
	Antimony	98.5	98.6	97.5	97.7		1.04
	Arsenic	93.5	94.0	93.6	92.2		0.482
	Barium	100	99.1	99.0	98.1		0.136
	Beryllium	91.7	92.2	91.6	89.2		0.705
	Boron	100	101	101	102		0.124
	Cadmium	97.0	97.1	95.9	97.0		1.24
	Chromium	92.5	93.1	93.3	91.9		0.266
	Cobalt	90.0	89.4	89.4	91.1		0.0368
	Copper	93.8	95.4	95.6	92.1		0.215
	Lead	95.4	96.1	97.1	95.0		1.03
	Manganese	97.3	96.5	95.8	95.6		0.683
	Molybdenum	94.2	94.8	94.6	94.5		0.221
	Nickel	89.8	89.7	89.2	92.9		0.636
	Selenium	96.2	97.3	94.1	93.7		3.33
	Silver	108	106	105	105		0.675
	Thallium	96.3	98.3	99.2	98.5		0.894
EPA 300.0 Rev. 2.1	Chloride	102	102	104		0.932	
	Sulfate	100	99.8	101		0.879	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	100	100			0.125
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	109	94.9			6.86
EPA 353.2 Rev. 2.0	NO2NO3-N	106	105	106			0.948
EPA 365.1 Rev. 2.0	Total-P	104	107	105			1.69
	Total-P	103	104	103			1.22
EPA 8321B	2,4-D	87.1	84.7	87.4			2.90
	2,4,5-T	92.5	115	128			10.7
	Acesulfame K	103	105	90.9			14.1
	Acetaminophen	104	68.5	72.9			6.23
	Acetamiprid	106	43.8	25.6			52.3
	Afidopyropen	82.8	76.8	59.9			24.7
	AMPA	139	159	158			0.213
	Bentazon	135					4.63
	Benzovindiflupyr	119	102	99.8			2.55
	Carbamazepine	92.6	48.6	51.0			4.99
	Clothianidin	104	54.3	54.3			0.0186
	Dinotefuran	102	31.9	33.4			4.63
	Diuron	104	44.5	43.5			2.30
	Endothall	85.5	100	91.4			9.39
	Fenuron	113	25.7	25.6			0.216
	Fluridone	95.0	55.9	53.1			5.00
	Glufosinate	82.2	84.8	79.7			6.29

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Glyphosate	85.3	55.7	66.7		17.9
	Hydrocodone	110	40.9	41.3		0.866
	Ibuprofen	79.7	63.1	67.4		6.53
	Imazapyr	87.9				0.0360
	Imidacloprid	93.9	74.8	75.5		0.853
	Linuron	86.4	59.3	50.9		15.3
	Mandestrobin	125	98.6	95.0		3.69
	MCP	98.8	116	117		0.802
	Naproxen	75.9	108	96.8		10.6
	Primidone	98.0	49.1	45.8		7.02
	Pyraclostrobin	96.8	87.5	87.4		0.173
	Silvex	92.4	135	136		0.931
	Sucralose	111	113	107		6.09
	Thiamethoxam	107	45.5	46.5		2.07
	Tolfenpyrad	64.6	55.7	62.1		10.9
	Triclopyr	110	134	125		7.27
SM 2320 B-2011	Total Alkalinity	98.2			0.737	
SM 2540 C-2015	TDS	96.8			5.41	
SM 2540 D-2015	TSS	93.9				
SM 4500-F- C-2011	Fluoride	97.1	97.4	98.6		1.01
SM 5310 B-2011	Organic Carbon	93.0	98.0	97.0		0.744

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2432141, 2432142, 2432143, 2432147
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2432141, 2432142, 2432143, 2432147
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2432163, 2432164
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2432163, 2432164
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2432141, 2432142, 2432143, 2432147
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2432141, 2432142, 2432143, 2432147
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2432144, 2432145, 2432146, 2432148
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2432144, 2432145, 2432146, 2432148
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2432144, 2432145, 2432146, 2432148
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2432144, 2432145, 2432146, 2432148
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2432162
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2432141, 2432142, 2432143, 2432147
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2432163, 2432164
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2432141, 2432142, 2432143, 2432147
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2432141, 2432142, 2432143, 2432147
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2432141, 2432142, 2432143, 2432147
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2432144, 2432145, 2432146, 2432148

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	08/18/2023			08/18/2023 15:18	Anna M. Plaviak	2432141, 2432142
	08/18/2023			08/18/2023 15:19	Anna M. Plaviak	2432143
	08/18/2023			08/18/2023 15:20	Anna M. Plaviak	2432147
EPA 180.1 Rev. 2.0	08/18/2023			08/18/2023 14:23	Alexis Price	2432141
	08/18/2023			08/18/2023 14:25	Alexis Price	2432142
	08/18/2023			08/18/2023 14:28	Alexis Price	2432143
EPA 200.7 Rev. 4.4	08/18/2023			08/18/2023 14:29	Alexis Price	2432147
	08/18/2023	08/21/2023 12:45	George D Taylor	08/23/2023 15:10	Samatha Luckman	2432163
	08/18/2023	08/21/2023 12:45	George D Taylor	08/23/2023 15:18	Samatha Luckman	2432164
EPA 200.8 Rev. 5.4	08/18/2023	08/21/2023 12:45	George D Taylor	08/22/2023 21:35	Conrad Hartmann	2432163
	08/18/2023	08/21/2023 12:45	George D Taylor	08/22/2023 21:44	Conrad Hartmann	2432164
	08/18/2023	08/21/2023 12:45	George D Taylor	08/23/2023 16:05	Conrad Hartmann	2432163
EPA 300.0 Rev. 2.1	08/18/2023	08/21/2023 12:45	George D Taylor	08/23/2023 16:11	Conrad Hartmann	2432164
	08/18/2023	08/21/2023 12:45	George D Taylor	08/25/2023 16:22	Conrad Hartmann	2432163
	08/18/2023	08/21/2023 12:45	George D Taylor	08/25/2023 16:29	Conrad Hartmann	2432164
EPA 350.1 Rev. 2.0	08/18/2023			08/22/2023 09:46	James L Waggeberby	2432147
	08/18/2023			08/22/2023 11:31	James L Waggeberby	2432141
	08/18/2023			08/22/2023 11:46	James L Waggeberby	2432142
EPA 351.2 Rev. 2.0	08/18/2023			08/22/2023 12:01	James L Waggeberby	2432143
	08/18/2023			08/24/2023 13:58	Ping Hua	2432144
	08/18/2023			08/24/2023 13:59	Ping Hua	2432145
EPA 353.2 Rev. 2.0	08/18/2023			08/24/2023 14:00	Ping Hua	2432146
	08/18/2023			08/24/2023 14:02	Ping Hua	2432148
	08/18/2023	09/05/2023 15:58	Simonne.V. Calhoun	09/06/2023 16:37	Samantha L Bates	2432144
EPA 365.1 Rev. 2.0	08/18/2023	09/05/2023 15:58	Simonne.V. Calhoun	09/06/2023 16:39	Samantha L Bates	2432145
	08/18/2023	09/05/2023 15:58	Simonne.V. Calhoun	09/06/2023 16:40	Samantha L Bates	2432146
	08/18/2023	09/05/2023 15:58	Simonne.V. Calhoun	09/06/2023 16:42	Samantha L Bates	2432148
EPA 8321B	08/18/2023			09/01/2023 13:35	Anna M. Plaviak	2432144
	08/18/2023			09/01/2023 13:37	Anna M. Plaviak	2432145
	08/18/2023			09/01/2023 13:38	Anna M. Plaviak	2432146
SM 2320 B-2011	08/18/2023			09/01/2023 13:39	Anna M. Plaviak	2432148
	08/18/2023	08/21/2023 16:54	Adam P Silver	08/22/2023 10:35	James L Waggeberby	2432144, 2432145
	08/18/2023	08/21/2023 16:54	Adam P Silver	08/22/2023 10:36	James L Waggeberby	2432146
EPA 8321B	08/18/2023	08/23/2023 18:21	Adam P Silver	08/24/2023 11:00	Simonne.V. Calhoun	2432148
	08/18/2023	08/22/2023 08:00	Hana Lee	08/22/2023 10:17	Tae K Lee	2432162
	08/18/2023	08/22/2023 08:00	Hana Lee	08/22/2023 19:55	Tae K Lee	2432162
SM 2320 B-2011	08/18/2023	08/23/2023 09:00	Hoor Shaik	09/01/2023 23:46	Juyoung Kim	2432162
	08/18/2023			08/28/2023 03:25	Dale L. Simmons	2432141
	08/18/2023			08/28/2023 03:31	Dale L. Simmons	2432142
	08/18/2023			08/28/2023 03:42	Dale L. Simmons	2432147

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	08/18/2023			08/28/2023 04:03	Dale L. Simmons	2432143
SM 2340 B-2011	08/18/2023			08/23/2023 15:10	Samatha Luckman	2432163
	08/18/2023			08/23/2023 15:18	Samatha Luckman	2432164
SM 2540 C-2015	08/18/2023			08/23/2023 16:38	Yijie Li	2432141, 2432142, 2432143, 2432147
SM 2540 D-2015	08/18/2023			08/23/2023 16:38	Yijie Li	2432141, 2432142, 2432143, 2432147
SM 4500-F- C-2011	08/18/2023			08/22/2023 02:24	Dale L. Simmons	2432141
	08/18/2023			08/22/2023 02:33	Dale L. Simmons	2432142
	08/18/2023			08/22/2023 02:45	Dale L. Simmons	2432143
	08/18/2023			08/22/2023 02:58	Dale L. Simmons	2432147
SM 5310 B-2011	08/18/2023			08/24/2023 17:06	Elise M. Gillis	2432144
	08/18/2023			08/24/2023 17:21	Elise M. Gillis	2432145
	08/18/2023			08/24/2023 17:35	Elise M. Gillis	2432146
	08/18/2023			08/24/2023 17:49	Elise M. Gillis	2432148