

Chemical Analysis Report

NW-DIST-2022-07-28-02

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

Event Description: **Walton Washinton Run**
Request ID: **RQ-2022-07-25-44**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 18-AUG-2022 17:06



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: Pine Log Creek upstream of Highway 20

Collection Date/Time: 07/27/2022 10:57

Field ID: G3NW0454

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344371	EPA 200.7 Rev. 4.4	Calcium	1.46		mg/L	P417348	
		Iron	430		ug/L	P417348	
		Magnesium	0.36		mg/L	P417348	
		Potassium	0.30	U	mg/L	P417348	
		Sodium	1.4	I	mg/L	P417348	
		Strontium	6.2	I	ug/L	P417348	
		Tin	3.0	U	ug/L	P417348	
		Titanium	1.4	I	ug/L	P417348	
		Vanadium	2.0	U	ug/L	P417348	
		Zinc	5.0	U	ug/L	P417348	
	EPA 200.8 Rev. 5.4	Aluminum	292		ug/L	P417674	
		Antimony	0.050	U	ug/L	P417348	
		Arsenic	0.27		ug/L	P417348	
		Barium	5.26		ug/L	P417348	
		Beryllium	0.020	I	ug/L	P417348	
		Boron	9.4		ug/L	P417348	
		Cadmium	0.020	U	ug/L	P417348	
		Chromium	0.40	U	ug/L	P417348	
		Cobalt	0.118		ug/L	P417348	
		Copper	0.40	U	ug/L	P417348	
		Lead	0.23	I	ug/L	P417348	
		Manganese	9.52		ug/L	P417348	
		Molybdenum	0.15	U	ug/L	P417348	
		Nickel	0.50	U	ug/L	P417348	
		Selenium	0.20	U	ug/L	P417348	
		Silver	0.010	U	ug/L	P417348	
		Thallium	0.10	U	ug/L	P417348	
	SM 2340 B-2011	Hardness	5.1		mg/L	P417348	

Sample Location: Lafayette Creek

Collection Date/Time: 07/27/2022 12:00

Field ID: G3NW0455

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344372	EPA 200.7 Rev. 4.4	Calcium	1.40		mg/L	P417348	
		Iron	290		ug/L	P417348	
		Magnesium	0.47		mg/L	P417348	
		Potassium	0.44	I	mg/L	P417348	
		Sodium	2.9		mg/L	P417348	
		Strontium	5.6	I	ug/L	P417348	
		Tin	3.0	U	ug/L	P417348	
		Titanium	1.3	I	ug/L	P417348	
		Vanadium	2.0	U	ug/L	P417348	
		Zinc	5.0	U	ug/L	P417348	
	EPA 200.8 Rev. 5.4	Aluminum	187		ug/L	P417674	
		Antimony	0.050	U	ug/L	P417348	
		Arsenic	0.26		ug/L	P417348	
		Barium	6.74		ug/L	P417348	
		Beryllium	0.018	I	ug/L	P417348	
		Boron	11.0		ug/L	P417348	
		Cadmium	0.020	U	ug/L	P417348	
		Chromium	0.40	U	ug/L	P417348	
		Cobalt	0.136		ug/L	P417348	
		Copper	0.40	U	ug/L	P417348	
		Lead	0.20	U	ug/L	P417348	
		Manganese	9.02		ug/L	P417348	
		Molybdenum	0.15	U	ug/L	P417348	
		Nickel	0.50	U	ug/L	P417348	
		Selenium	0.20	U	ug/L	P417348	
		Silver	0.010	U	ug/L	P417348	
		Thallium	0.10	U	ug/L	P417348	
	SM 2340 B-2011	Hardness	5.5		mg/L	P417348	

Sample Location: Panther Creek upstream of SR 280

Collection Date/Time: 07/27/2022 12:40

Field ID: G3NW0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344357	DEP SOP: NU-094-1	Color (true)	75		PCU	P417336	
	EPA 180.1 Rev. 2.0	Turbidity	8.3		NTU	P417340	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P417636	
		Sulfate	0.95		mg SO4/L	P417641	
	SM 2320 B-2011	Total Alkalinity	1.6	I	mg CaCO3/L	P417438	
	SM 2540 C-2011	TDS	29		mg/L	P417810	
	SM 2540 D-2011	TSS	15		mg/L	P417803	
	SM 4500-F- C-2011	Fluoride	0.035	U	mg F/L	P417951	
2344358	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P417419	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P417369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P417485	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P417450	
	SM 5310 B-2011	Organic Carbon	7.5		mg C/L	P417698	

Ref. Method and Comment:

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

Sample Location: Bay Branch below Coy Burgess Loop

Collection Date/Time: 07/27/2022 13:10

Field ID: G3NW0231

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344367	EPA 8321B	2,4-D	0.0020	U	ug/L	P417461	
		Acesulfame K	0.10	U	ug/L	P417296	
		2,4,5-T	0.0040	U	ug/L	P417461	
		AMPA	0.10	U	ug/L	P417296	
		Acetaminophen	0.0080	U	ug/L	P417461	
		Acetamiprid	0.0020	U	ug/L	P417461	
		Endothall	0.25	U	ug/L	P417296	
		Glufosinate	0.10	U	ug/L	P417296	MS
		Glyphosate	0.10	U	ug/L	P417296	
		Afidopyropen	0.0020	U	ug/L	P417461	
		Bentazon	8.0E-04	U	ug/L	P417461	
		Sucralose	0.12		ug/L	P417296	
		Benzovindiflupyr	0.0020	U	ug/L	P417461	
		Carbamazepine	8.0E-04	U	ug/L	P417461	
		Clothianidin	0.0020	U	ug/L	P417461	
		Dinotefuran	0.0020	U	ug/L	P417461	
		Diuron	0.0020	U	ug/L	P417461	
		Fenuron	0.032	U	ug/L	P417461	
		Fluridone	8.0E-04	U	ug/L	P417461	
		Imazapyr	0.0040	U	ug/L	P417461	
		Hydrocodone	0.0020	U	ug/L	P417461	
		Ibuprofen	0.080	U	ug/L	P417461	
		Imidacloprid	0.020		ug/L	P417461	
		Linuron	0.0040	U	ug/L	P417461	
		Mandestrobin	0.0020	U	ug/L	P417461	
		MCPP	0.0040	U	ug/L	P417461	
		Naproxen	0.0080	U	ug/L	P417461	
		Primidone	0.0040	U	ug/L	P417461	
		Pyraclostrobin	0.0020	U	ug/L	P417461	
		Silvex	0.0040	U	ug/L	P417461	
		Thiamethoxam	0.0020	U	ug/L	P417461	
		Tolfenpyrad	0.0020	U	ug/L	P417461	
		Triclopyr	0.0040	U	ug/L	P417461	
2344369	EPA 200.7 Rev. 4.4	Calcium	4.21		mg/L	P417348	
		Iron	1.12E+03		ug/L	P417348	
		Magnesium	0.99		mg/L	P417348	
		Potassium	0.30	I	mg/L	P417348	
		Sodium	2.3		mg/L	P417348	
		Strontium	12.2		ug/L	P417348	
		Tin	3.0	U	ug/L	P417348	
		Titanium	2.4	I	ug/L	P417348	
		Vanadium	2.0	U	ug/L	P417348	
		Zinc	8.0	I	ug/L	P417348	
	EPA 200.8 Rev. 5.4	Aluminum	273		ug/L	P417674	

Field ID: G3NW0231

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344369	EPA 200.8 Rev. 5.4	Antimony	0.050	I	ug/L	P417348	
		Arsenic	0.46		ug/L	P417348	
		Barium	16.5		ug/L	P417348	
		Beryllium	0.030	I	ug/L	P417348	
		Boron	12.1		ug/L	P417348	
		Cadmium	0.020	U	ug/L	P417348	
		Chromium	0.42	I	ug/L	P417348	
		Cobalt	0.200		ug/L	P417348	
		Copper	0.40	U	ug/L	P417348	
		Lead	0.51		ug/L	P417348	
		Manganese	23.6		ug/L	P417348	
		Molybdenum	0.15	U	ug/L	P417348	
		Nickel	0.51	I	ug/L	P417348	
		Selenium	0.20	U	ug/L	P417348	
		Silver	0.010	U	ug/L	P417348	
		Thallium	0.10	U	ug/L	P417348	
	SM 2340 B-2011	Hardness	14.6		mg/L	P417348	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 08/02/2022.

Sample Location: Bay Branch upstream of HWY 331

Collection Date/Time: 07/27/2022 13:45

Field ID: G3NW0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344368	EPA 8321B	2,4-D	0.0020	U	ug/L	P417461	
		Acesulfame K	0.10	U	ug/L	P417296	
		2,4,5-T	0.0040	U	ug/L	P417461	
		AMPA	0.10	U	ug/L	P417296	
		Acetaminophen	0.0080	U	ug/L	P417461	
		Acetamiprid	0.0020	U	ug/L	P417461	
		Endothall	0.25	U	ug/L	P417296	
		Glufosinate	0.10	U	ug/L	P417296	MS
		Glyphosate	0.10	U	ug/L	P417296	
		Afidopyropen	0.0020	U	ug/L	P417461	
		Bentazon	8.0E-04	U	ug/L	P417461	
		Sucralose	0.19		ug/L	P417296	
		Benzovindiflupyr	0.0020	U	ug/L	P417461	
		Carbamazepine	0.0031	I	ug/L	P417461	
		Clothianidin	0.0020	U	ug/L	P417461	
		Dinotefuran	0.0020	U	ug/L	P417461	
		Diuron	0.0020	U	ug/L	P417461	
		Fenuron	0.032	U	ug/L	P417461	
		Fluridone	8.0E-04	U	ug/L	P417461	
		Imazapyr	0.0040	U	ug/L	P417461	
		Hydrocodone	0.0020	U	ug/L	P417461	
		Ibuprofen	0.080	U	ug/L	P417461	
		Imidacloprid	0.0092		ug/L	P417461	
		Linuron	0.0040	U	ug/L	P417461	
		Mandestrobin	0.0020	U	ug/L	P417461	
		MCPP	0.0040	U	ug/L	P417461	
		Naproxen	0.0080	U	ug/L	P417461	
		Primidone	0.0040	U	ug/L	P417461	
		Pyraclostrobin	0.0020	U	ug/L	P417461	
		Silvex	0.0040	U	ug/L	P417461	
		Thiamethoxam	0.0020	U	ug/L	P417461	
		Tolfenpyrad	0.0020	U	ug/L	P417461	
		Triclopyr	0.0040	U	ug/L	P417461	
2344370	EPA 200.7 Rev. 4.4	Calcium	4.43		mg/L	P417348	
		Iron	1.12E+03		ug/L	P417348	
		Magnesium	0.93		mg/L	P417348	
		Potassium	0.32	I	mg/L	P417348	
		Sodium	2.1		mg/L	P417348	
		Strontium	11.7		ug/L	P417348	
		Tin	3.0	U	ug/L	P417348	
		Titanium	1.8	I	ug/L	P417348	
		Vanadium	2.0	U	ug/L	P417348	
		Zinc	6.0	I	ug/L	P417348	
	EPA 200.8 Rev. 5.4	Aluminum	246		ug/L	P417674	

Field ID: G3NW0171

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344370	EPA 200.8 Rev. 5.4	Antimony	0.050	U	ug/L	P417348	
		Arsenic	0.56		ug/L	P417348	
		Barium	12.5		ug/L	P417348	
		Beryllium	0.022	I	ug/L	P417348	
		Boron	11.5		ug/L	P417348	
		Cadmium	0.020	U	ug/L	P417348	
		Chromium	0.53	I	ug/L	P417348	
		Cobalt	0.100		ug/L	P417348	
		Copper	0.40	U	ug/L	P417348	
		Lead	0.32	I	ug/L	P417348	
		Manganese	11.1		ug/L	P417348	
		Molybdenum	0.15	U	ug/L	P417348	
		Nickel	0.50	U	ug/L	P417348	
		Selenium	0.20	U	ug/L	P417348	
		Silver	0.010	U	ug/L	P417348	
		Thallium	0.10	U	ug/L	P417348	
	SM 2340 B-2011	Hardness	14.9		mg/L	P417348	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P417336

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417340

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417348

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: P417348

Component	Result	Code	Units
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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417674

Component	Result	Code	Units
Aluminum	5.0	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417636

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417641

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417419

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417369

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417485

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417450

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

Reference Method: EPA 8321B
Batch ID: P417296

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

Reference Method: EPA 8321B
Batch ID: P417461

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B

Batch ID: P417461

Component	Result	Code	Units
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	0.0040	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: P417438

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

Reference Method: SM 2540 C-2011

Batch ID: P417810

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P417803

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011

Batch ID: P417951

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011

Batch ID: P417698

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: P417336

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

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417340

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	96.7		P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	80 - 120
Iron	109		P	80 - 120
Magnesium	104		P	80 - 120
Potassium	104		P	80 - 120
Sodium	102		P	80 - 120
Strontium	100		P	80 - 120
Tin	102		P	80 - 120
Titanium	103		P	80 - 120
Vanadium	102		P	80 - 120
Zinc	100		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417348

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Antimony	105		P	85 - 115
Arsenic	96.8		P	85 - 115
Barium	107		P	85 - 115
Beryllium	94.3		P	85 - 115
Boron	97.4		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	100		P	85 - 115
Cobalt	99.3		P	85 - 115
Copper	97.1		P	85 - 115
Lead	93.5		P	85 - 115
Manganese	105		P	85 - 115
Molybdenum	95.8		P	85 - 115
Nickel	98.9		P	85 - 115
Selenium	101		P	85 - 115
Silver	98.0		P	85 - 115
Thallium	97.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417641

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: P417419

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417369

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417485

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417450

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

Reference Method: EPA 8321B
Batch ID: P417296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	101		P	40 - 150
AMPA	114		P	40 - 150
Endothall	96.8		P	40 - 150
Glufosinate	144		P	40 - 150
Glyphosate	115		P	40 - 150
Sucralose	98.5		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P417461

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	101		P	40 - 150
2,4,5-T	73.7		P	40 - 150
Acetaminophen	94.3		P	30 - 150
Acetamiprid	110		P	40 - 150
Afidopyropen	77.3		P	30 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P417461

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bentazon	88.7		P	30 - 150
Benzovindiflupyr	93.3		P	40 - 150
Carbamazepine	111		P	40 - 150
Clothianidin	111		P	40 - 150
Dinotefuran	102		P	40 - 150
Diuron	93.1		P	40 - 150
Fenuron	113		P	40 - 150
Fluridone	94.0		P	40 - 150
Hydrocodone	104		P	40 - 150
Ibuprofen	92.7		P	40 - 150
Imazapyr	105		P	40 - 150
Imidacloprid	148		P	40 - 150
Linuron	112		P	40 - 150
Mandestrobin	102		P	40 - 150
MCPP	94.9		P	40 - 150
Naproxen	77.0		P	40 - 150
Primidone	107		P	40 - 150
Pyraclostrobin	92.6		P	40 - 150
Silvex	63.2		P	40 - 150
Thiamethoxam	107		P	40 - 150
Tolfenpyrad	52.6		P	30 - 150
Triclopyr	80.6		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P417438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 4500-F- C-2011

Batch ID: P417951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	96 - 104

Reference Method: SM 5310 B-2011

Batch ID: P417698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P417348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344298	Calcium	102		P	80 - 120
2344298	Iron	116		P	80 - 120
2344298	Magnesium	111		P	80 - 120
2344298	Potassium	99.1		P	80 - 120
2344298	Sodium	100		P	80 - 120
2344298	Strontium	101		P	80 - 120
2344298	Tin	97.7		P	80 - 120
2344298	Titanium	106		P	80 - 120
2344298	Vanadium	102		P	80 - 120
2344298	Zinc	99.6		P	80 - 120
2344442	Calcium	102		P	80 - 120
2344442	Iron	109	106	P/P	80 - 120
2344442	Magnesium	102		P	80 - 120
2344442	Potassium	101	97.5	P/P	80 - 120
2344442	Sodium	103	100	P/P	80 - 120
2344442	Strontium	101	99.0	P/P	80 - 120
2344442	Tin	102	100	P/P	80 - 120
2344442	Titanium	103	101	P/P	80 - 120
2344442	Vanadium	102	100	P/P	80 - 120
2344442	Zinc	99.0	96.7	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P417348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344298	Antimony	96.2		P	80 - 120
2344298	Arsenic	95.1		P	80 - 120
2344298	Barium	101		P	80 - 120
2344298	Beryllium	92.1		P	80 - 120
2344298	Boron	102		P	80 - 120
2344298	Cadmium	97.3		P	80 - 120
2344298	Chromium	99.4		P	80 - 120
2344298	Cobalt	95.3		P	80 - 120
2344298	Copper	94.4		P	80 - 120
2344298	Lead	92.7		P	80 - 120
2344298	Manganese	110		P	80 - 120
2344298	Molybdenum	93.3		P	80 - 120
2344298	Nickel	96.3		P	80 - 120
2344298	Selenium	92.2		P	80 - 120
2344298	Silver	95.2		P	80 - 120
2344298	Thallium	96.9		P	80 - 120
2344442	Antimony	103	103	P/P	80 - 120
2344442	Arsenic	95.9	96.0	P/P	80 - 120
2344442	Barium	103	104	P/P	80 - 120
2344442	Beryllium	92.0	90.1	P/P	80 - 120
2344442	Boron	97.6	99.9	P/P	80 - 120
2344442	Cadmium	97.7	95.7	P/P	80 - 120
2344442	Chromium	99.3	98.7	P/P	80 - 120
2344442	Cobalt	96.3	95.2	P/P	80 - 120
2344442	Copper	93.6	93.0	P/P	80 - 120
2344442	Lead	92.0	91.9	P/P	80 - 120
2344442	Manganese	102	102	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344442	Molybdenum	95.7	95.3	P/P	80 - 120
2344442	Nickel	95.0	93.3	P/P	80 - 120
2344442	Selenium	95.3	95.3	P/P	80 - 120
2344442	Silver	96.3	96.0	P/P	80 - 120
2344442	Thallium	97.6	98.2	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344299	Aluminum	98.2	98.5	P/P	80 - 120
2344403	Aluminum	90.2		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344433	Chloride	98.8		P	90 - 110
2344527	Chloride	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344433	Sulfate	98.0		P	90 - 110
2344527	Sulfate	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344317	Ammonia-N	98.2	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344237	Kjeldahl Nitrogen	99.9	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344248	NO2NO3-N	98.2	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344358	Total-P	102	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P417296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344258	Acesulfame K	87.7	89.6	P/P	40 - 150
2344258	AMPA	49.1	47.7	P/P	40 - 150
2344258	Endothall	96.2	98.0	P/P	40 - 150
2344258	Glufosinate	35.9	39.2	F/F	40 - 150
2344258	Glyphosate	62.2	64.3	P/P	40 - 150
2344258	Sucralose	94.0	97.6	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P417461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344397	2,4-D	98.1	90.7	P/P	40 - 150
2344397	2,4,5-T	62.4	67.5	P/P	40 - 150
2344397	Acetaminophen	107	100	P/P	30 - 150
2344397	Acetamiprid	89.8	72.3	P/P	40 - 150
2344397	Afidopyropen	73.2	68.8	P/P	30 - 150
2344397	Benzovindiflupyr	102	94.4	P/P	40 - 150
2344397	Carbamazepine	98.1	93.7	P/P	40 - 150
2344397	Clothianidin	89.7	103	P/P	40 - 150
2344397	Dinotefuran	116	110	P/P	40 - 150
2344397	Diuron	81.3	89.2	P/P	40 - 150
2344397	Fenuron	89.8	84.3	P/P	40 - 150
2344397	Fluridone	80.0	79.7	P/P	40 - 150
2344397	Hydrocodone	101	99.4	P/P	40 - 150
2344397	Ibuprofen	83.2	65.0	P/P	40 - 150
2344397	Imazapyr	91.4	86.0	P/P	40 - 150
2344397	Imidacloprid	142	148	P/P	40 - 150
2344397	Linuron	95.1	87.1	P/P	40 - 150
2344397	Mandestrobin	92.7	87.6	P/P	40 - 150
2344397	MCPP	85.4	79.1	P/P	40 - 150
2344397	Naproxen	70.6	83.6	P/P	40 - 150
2344397	Primidone	108	109	P/P	40 - 150
2344397	Pyraclostrobin	92.4	89.7	P/P	40 - 150
2344397	Silvex	74.9	62.5	P/P	40 - 150
2344397	Thiamethoxam	126	121	P/P	40 - 150
2344397	Tolfenpyrad	54.1	50.7	P/P	30 - 150
2344397	Triclopyr	60.2	71.2	P/P	40 - 150

Reference Method: SM 4500-F- C-2011

Batch ID: P417951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344109	Fluoride	99.8	100	P/P	94 - 104

Reference Method: SM 5310 B-2011

Batch ID: P417698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344317	Organic Carbon	99.4	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P417336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344236	Color (true)	5.06	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P417340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344246	Turbidity	4.88	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P417348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344442	Calcium	1.19	Spike	P	0 - 20
2344442	Iron	2.25	Spike	P	0 - 20
2344442	Magnesium	1.13	Spike	P	0 - 20
2344442	Potassium	3.11	Spike	P	0 - 20
2344442	Sodium	2.07	Spike	P	0 - 20
2344442	Strontium	1.90	Spike	P	0 - 20
2344442	Tin	1.60	Spike	P	0 - 20
2344442	Titanium	1.70	Spike	P	0 - 20
2344442	Vanadium	1.73	Spike	P	0 - 20
2344442	Zinc	2.34	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344442	Antimony	0.0979	Spike	P	0 - 20
2344442	Arsenic	0.0584	Spike	P	0 - 20
2344442	Barium	0.791	Spike	P	0 - 20
2344442	Beryllium	2.11	Spike	P	0 - 20
2344442	Boron	2.12	Spike	P	0 - 20
2344442	Cadmium	2.09	Spike	P	0 - 20
2344442	Chromium	0.545	Spike	P	0 - 20
2344442	Cobalt	1.16	Spike	P	0 - 20
2344442	Copper	0.694	Spike	P	0 - 20
2344442	Lead	0.0868	Spike	P	0 - 20
2344442	Manganese	0.682	Spike	P	0 - 20
2344442	Molybdenum	0.363	Spike	P	0 - 20
2344442	Nickel	1.84	Spike	P	0 - 20
2344442	Selenium	0.00129	Spike	P	0 - 20
2344442	Silver	0.336	Spike	P	0 - 20
2344442	Thallium	0.552	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P417674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344299	Aluminum	0.278	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344433	Chloride	1.65	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P417641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344433	Sulfate	2.33	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344317	Ammonia-N	2.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344237	Kjeldahl Nitrogen	1.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344248	NO2NO3-N	0.375	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344358	Total-P	0.405	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P417296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344258	Acesulfame K	2.11	Spike	P	0 - 30
2344258	AMPA	2.42	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P417296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344258	Endothall	1.90	Spike	P	0 - 30
2344258	Glufosinate	8.74	Spike	P	0 - 30
2344258	Glyphosate	2.31	Spike	P	0 - 30
2344258	Sucralose	3.58	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P417461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344397	2,4-D	7.79	Spike	P	0 - 30
2344397	2,4,5-T	7.91	Spike	P	0 - 30
2344397	Acetaminophen	6.19	Spike	P	0 - 30
2344397	Acetamiprid	21.6	Spike	P	0 - 30
2344397	Afidopyropen	6.24	Spike	P	0 - 30
2344397	Bentazon	14.5	Spike	P	0 - 30
2344397	Benzovindiflupyr	7.40	Spike	P	0 - 30
2344397	Carbamazepine	4.28	Spike	P	0 - 30
2344397	Clothianidin	14.1	Spike	P	0 - 30
2344397	Dinotefuran	5.05	Spike	P	0 - 30
2344397	Diuron	8.91	Spike	P	0 - 30
2344397	Fenuron	6.27	Spike	P	0 - 30
2344397	Fluridone	0.278	Spike	P	0 - 30
2344397	Hydrocodone	1.95	Spike	P	0 - 30
2344397	Ibuprofen	24.5	Spike	P	0 - 30
2344397	Imazapyr	6.07	Spike	P	0 - 30
2344397	Imidacloprid	3.84	Spike	P	0 - 30
2344397	Linuron	8.71	Spike	P	0 - 30
2344397	Mandestrobin	5.67	Spike	P	0 - 30
2344397	MCP	7.69	Spike	P	0 - 30
2344397	Naproxen	16.8	Spike	P	0 - 30
2344397	Primidone	0.718	Spike	P	0 - 30
2344397	Pyraclostrobin	2.93	Spike	P	0 - 30
2344397	Silvex	18.0	Spike	P	0 - 30
2344397	Thiamethoxam	3.92	Spike	P	0 - 30
2344397	Tolfenpyrad	6.46	Spike	P	0 - 30
2344397	Triclopyr	16.7	Spike	P	0 - 30

Reference Method: SM 2320 B-2011

Batch ID: P417438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344433	Total Alkalinity	0.833	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2011

Batch ID: P417810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344433	TDS	4.20	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P417951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344109	Fluoride	0.525	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P417698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344317	Organic Carbon	0.363	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2344367

Field Sample ID: G3NW0231

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	118	P	30 - 160
EPA 8321B	Acetaminophen-d4	94.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	111	P	30 - 160
EPA 8321B	Diuron-d6	101	P	30 - 160
EPA 8321B	Endothall-d6	120	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	102	P	30 - 160
EPA 8321B	Ibuprofen-d3	86.0	P	30 - 160
EPA 8321B	Primidone-d5	108	P	30 - 160
EPA 8321B	Sucralose-d6	99.5	P	30 - 160

Lab Sample ID: 2344368

Field Sample ID: G3NW0171

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	105	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	106	P	30 - 160
EPA 8321B	Diuron-d6	80.6	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	95.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.6	P	30 - 160
EPA 8321B	Primidone-d5	80.3	P	30 - 160
EPA 8321B	Sucralose-d6	99.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A113769

Included Lab Sample IDs: 2344357

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113772

Included Lab Sample IDs: 2344357

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113803

Included Lab Sample IDs: 2344358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.0	97.4	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A113811

Included Lab Sample IDs: 2344357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	97.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A113832

Included Lab Sample IDs: 2344367, 2344368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	124	123	P/P	60 - 160
Endothall	101	88.3	P/P	60 - 160
Glufosinate	118	110	P/P	60 - 160
Glyphosate	111	115	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A113833

Included Lab Sample IDs: 2344367, 2344368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	101	104	P/P	60 - 160
Sucralose	101	104	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113842

Included Lab Sample IDs: 2344369, 2344370, 2344371, 2344372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	101	98.2	P/P	90 - 110
Antimony	98.2	99.4	P/P	90 - 110
Arsenic	96.5	97.6	P/P	90 - 110
Arsenic	96.6	96.5	P/P	90 - 110
Barium	100	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113842

Included Lab Sample IDs: 2344369, 2344370, 2344371, 2344372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	97.5	98.5	P/P	90 - 110
Beryllium	91.8	93.1	P/P	90 - 110
Beryllium	94.1	91.8	P/P	90 - 110
Boron	94.5	97.8	P/P	90 - 110
Boron	97.8	99.7	P/P	90 - 110
Cadmium	99.0	99.4	P/P	90 - 110
Cadmium	99.9	99.0	P/P	90 - 110
Chromium	97.9	98.8	P/P	90 - 110
Chromium	99.3	97.9	P/P	90 - 110
Cobalt	96.7	98.2	P/P	90 - 110
Cobalt	97.8	96.7	P/P	90 - 110
Copper	96.6	97.2	P/P	90 - 110
Copper	97.2	98.8	P/P	90 - 110
Lead	92.0	92.2	P/P	90 - 110
Lead	92.2	91.9	P/P	90 - 110
Manganese	100	100	P/P	90 - 110
Manganese	103	100	P/P	90 - 110
Molybdenum	95.4	95.7	P/P	90 - 110
Molybdenum	95.7	95.4	P/P	90 - 110
Nickel	96.4	97.7	P/P	90 - 110
Nickel	96.5	96.4	P/P	90 - 110
Selenium	96.5	98.9	P/P	90 - 110
Selenium	99.0	96.5	P/P	90 - 110
Silver	97.3	97.6	P/P	90 - 110
Silver	97.6	98.3	P/P	90 - 110
Thallium	95.8	96.5	P/P	90 - 110
Thallium	96.5	94.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113846

Included Lab Sample IDs: 2344358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113857

Included Lab Sample IDs: 2344358

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

Reference Method: EPA 8321B

Run ID: A113874

Included Lab Sample IDs: 2344367, 2344368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.6	88.4	P/P	50 - 150
2,4,5-T	111	117	P/P	50 - 150
Acetaminophen	88.1	102	P/P	60 - 160
Acetamiprid	90.8	89.6	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A113874

Included Lab Sample IDs: 2344367, 2344368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Afidopyropen	98.8	94.9	P/P	50 - 150
Bentazon	105	110	P/P	50 - 160
Benzovindiflupyr	111	94.1	P/P	50 - 150
Carbamazepine	93.3	106	P/P	60 - 150
Clothianidin	95.1	107	P/P	60 - 150
Dinotefuran	87.7	93.2	P/P	50 - 150
Diuron	88.8	114	P/P	60 - 160
Fenuron	88.8	98.8	P/P	60 - 150
Fluridone	98.7	98.0	P/P	60 - 160
Hydrocodone	90.9	104	P/P	60 - 150
Ibuprofen	94.5	96.6	P/P	50 - 160
Imazapyr	101	107	P/P	50 - 150
Imidacloprid	88.6	97.6	P/P	60 - 150
Linuron	91.7	103	P/P	60 - 150
Mandestrobin	102	102	P/P	50 - 150
MCPP	96.1	96.4	P/P	50 - 150
Naproxen	80.3	88.7	P/P	50 - 160
Primidone	88.6	104	P/P	60 - 150
Pyraclostrobin	106	104	P/P	60 - 150
Silvex	75.7	91.3	P/P	50 - 150
Thiamethoxam	89.6	102	P/P	50 - 150
Tolfenpyrad	104	104	P/P	60 - 150
Triclopyr	85.4	98.2	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113876

Included Lab Sample IDs: 2344358

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113889

Included Lab Sample IDs: 2344369, 2344370, 2344371, 2344372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	102	P/P	90 - 110
Calcium	102	102	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Magnesium	103	103	P/P	90 - 110
Potassium	101	100	P/P	90 - 110
Potassium	100	101	P/P	90 - 110
Sodium	97.4	97.9	P/P	90 - 110
Sodium	99.1	97.4	P/P	90 - 110
Strontium	96.9	99.1	P/P	90 - 110
Strontium	99.1	96.0	P/P	90 - 110
Tin	100	98.7	P/P	90 - 110
Tin	92.2	100	P/P	90 - 110
Titanium	102	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A113889

Included Lab Sample IDs: 2344369, 2344370, 2344371, 2344372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Titanium	95.4	102	P/P	90 - 110
Vanadium	102	100	P/P	90 - 110
Vanadium	94.8	102	P/P	90 - 110
Zinc	93.1	99.3	P/P	90 - 110
Zinc	99.3	97.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A113902

Included Lab Sample IDs: 2344357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.7	96.0	P/P	90 - 110
Sulfate	97.7	94.9	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113927

Included Lab Sample IDs: 2344358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.9	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A113975

Included Lab Sample IDs: 2344369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	90.5	97.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A114000

Included Lab Sample IDs: 2344370, 2344371, 2344372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.4	96.2	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A114020

Included Lab Sample IDs: 2344357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	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			LCS	Precision SMP	MS
DEP SOP: NU-094-1	Color (true)	101					5.06	
EPA 180.1 Rev. 2.0	Turbidity	96.7					4.88	
EPA 200.7 Rev. 4.4	Calcium	104	102	102				1.19
	Iron	109	116	109	106			2.25
	Magnesium	104	111	102				1.13
	Potassium	104	99.1	101	97.5			3.11
	Sodium	102	100	103	100			2.07
	Strontium	100	101	101	99.0			1.90
	Tin	102	97.7	102	100			1.60
	Titanium	103	106	103	101			1.70
	Vanadium	102	102	102	100			1.73
	Zinc	100	99.6	99.0	96.7			2.34
EPA 200.8 Rev. 5.4	Aluminum	100	98.2	98.5	90.2			0.278
	Antimony	105	103	103	96.2			0.0979
	Arsenic	96.8	95.9	96.0	95.1			0.0584
	Barium	107	103	104	101			0.791
	Beryllium	94.3	92.0	90.1	92.1			2.11
	Boron	97.4	97.6	99.9	102			2.12
	Cadmium	98.2	97.7	95.7	97.3			2.09
	Chromium	100	99.3	98.7	99.4			0.545
	Cobalt	99.3	96.3	95.2	95.3			1.16
	Copper	97.1	93.6	93.0	94.4			0.694
	Lead	93.5	92.0	91.9	92.7			0.0868
	Manganese	105	102	102	110			0.682
	Molybdenum	95.8	95.7	95.3	93.3			0.363
	Nickel	98.9	95.0	93.3	96.3			1.84
	Selenium	101	95.3	95.3	92.2			0.0012
	Silver	98.0	96.3	96.0	95.2			0.336
	Thallium	97.5	97.6	98.2	96.9			0.552
EPA 300.0 Rev. 2.1	Chloride	97.3	98.8	95.9			1.65	
	Sulfate	97.2	98.0	95.5			2.33	
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	98.2	103				2.97
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	99.9	102				1.57
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	98.2	98.6				0.375
EPA 365.1 Rev. 2.0	Total-P	101	102	102				0.405
EPA 8321B	2,4-D	101	98.1	90.7				7.79
	2,4,5-T	73.7	62.4	67.5				7.91
	Acesulfame K	101	87.7	89.6				2.11
	Acetaminophen	94.3	107	100				6.19
	Acetamiprid	110	89.8	72.3				21.6
	Afidopyropen	77.3	73.2	68.8				6.24
	AMPA	114	49.1	47.7				2.42
	Bentazon	88.7						14.5
	Benzovindiflupyr	93.3	102	94.4				7.40
	Carbamazepine	111	98.1	93.7				4.28
	Clothianidin	111	89.7	103				14.1
	Dinotefuran	102	116	110				5.05
	Diuron	93.1	81.3	89.2				8.91
	Endothall	96.8	96.2	98.0				1.90
	Fenuron	113	89.8	84.3				6.27
	Fluridone	94.0	80.0	79.7				0.278
	Glufosinate	144	35.9	39.2				8.74
	Glyphosate	115	62.2	64.3				2.31
	Hydrocodone	104	101	99.4				1.95

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Ibuprofen	92.7	83.2	65.0			24.5
	Imazapyr	105	91.4	86.0			6.07
	Imidacloprid	148	142	148			3.84
	Linuron	112	95.1	87.1			8.71
	Mandestrobin	102	92.7	87.6			5.67
	MCPP	94.9	85.4	79.1			7.69
	Naproxen	77.0	70.6	83.6			16.8
	Primidone	107	108	109			0.718
	Pyraclostrobin	92.6	92.4	89.7			2.93
	Silvex	63.2	74.9	62.5			18.0
	Sucralose	98.5	94.0	97.6			3.58
	Thiamethoxam	107	126	121			3.92
	Tolfenpyrad	52.6	54.1	50.7			6.46
	Triclopyr	80.6	60.2	71.2			16.7
SM 2320 B-2011	Total Alkalinity	100				0.833	
SM 2540 C-2011	TDS					4.20	
SM 4500-F- C-2011	Fluoride	102	99.8	100			0.525
SM 5310 B-2011	Organic Carbon	96.3	99.4	100			0.363

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2344357
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2344357
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2344369, 2344370, 2344371, 2344372
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2344369, 2344370, 2344371, 2344372
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2344357
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2344357
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2344358
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2344358
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2344358
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2344358
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2344367, 2344368
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2344357
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2344369, 2344370, 2344371, 2344372
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2344357
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2344357
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2344357
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2344358

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	07/28/2022			07/28/2022 14:33	Anna M. Plaviak	2344357
EPA 180.1 Rev. 2.0	07/28/2022			07/28/2022 13:53	Khloe J Berg	2344357
EPA 200.7 Rev. 4.4	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/03/2022 15:51	Alexander Thompson	2344369
	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/03/2022 15:57	Alexander Thompson	2344370
	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/03/2022 16:29	Alexander Thompson	2344371
	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/03/2022 16:35	Alexander Thompson	2344372
EPA 200.8 Rev. 5.4	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/01/2022 18:45	Megan Whitefoot	2344369
	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/01/2022 19:40	Megan Whitefoot	2344370
	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/01/2022 19:49	Megan Whitefoot	2344371
	07/28/2022	07/29/2022 07:52	Mackenzie Hunt	08/01/2022 19:58	Megan Whitefoot	2344372
	07/28/2022	08/05/2022 08:46	Mackenzie Hunt	08/08/2022 19:35	Megan Whitefoot	2344369
	07/28/2022	08/05/2022 08:46	Mackenzie Hunt	08/10/2022 01:06	Emily M Philpot	2344370
	07/28/2022	08/05/2022 08:46	Mackenzie Hunt	08/10/2022 01:16	Emily M Philpot	2344371
	07/28/2022	08/05/2022 08:46	Mackenzie Hunt	08/10/2022 01:26	Emily M Philpot	2344372
EPA 300.0 Rev. 2.1	07/28/2022			08/04/2022 03:21	Anna M. Plaviak	2344357
EPA 350.1 Rev. 2.0	07/28/2022			07/29/2022 11:04	Ping Hua	2344358
EPA 351.2 Rev. 2.0	07/28/2022	08/01/2022 14:10	Samantha L Bates	08/02/2022 14:24	Alexandra J Mattheus	2344358
EPA 353.2 Rev. 2.0	07/28/2022			08/02/2022 08:50	Beverly Y. Sanders	2344358
EPA 365.1 Rev. 2.0	07/28/2022	08/01/2022 14:20	Simonne.V. Calhoun	08/02/2022 11:28	James L Waggeberby	2344358
EPA 8321B	07/28/2022	08/01/2022 09:30	Umesh Chiluwal	08/01/2022 11:54	Umesh Chiluwal	2344367
	07/28/2022	08/01/2022 09:30	Umesh Chiluwal	08/01/2022 12:07	Umesh Chiluwal	2344368
	07/28/2022	08/01/2022 09:30	Umesh Chiluwal	08/01/2022 22:49	Umesh Chiluwal	2344367
	07/28/2022	08/01/2022 09:30	Umesh Chiluwal	08/01/2022 23:04	Umesh Chiluwal	2344368
	07/28/2022	08/02/2022 09:30	June Rhew	08/03/2022 03:24	Juyoung Kim	2344367
	07/28/2022	08/02/2022 09:30	June Rhew	08/03/2022 03:45	Juyoung Kim	2344368
SM 2320 B-2011	07/28/2022			07/30/2022 19:11	Adam P Silver	2344357
SM 2340 B-2011	07/28/2022			08/03/2022 15:51	Alexander Thompson	2344369
	07/28/2022			08/03/2022 15:57	Alexander Thompson	2344370
	07/28/2022			08/03/2022 16:29	Alexander Thompson	2344371
	07/28/2022			08/03/2022 16:35	Alexander Thompson	2344372
SM 2540 C-2011	07/28/2022			08/02/2022 15:05	Yijie Li	2344357
SM 2540 D-2011	07/28/2022			08/02/2022 15:05	Yijie Li	2344357
SM 4500-F- C-2011	07/28/2022			08/10/2022 14:39	Adam P Silver	2344357
SM 5310 B-2011	07/28/2022			08/04/2022 00:09	Khloe J Berg	2344358