

Chemical Analysis Report

TLH-ROC-2022-11-01-02

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

Event Description: **Run 5**
Request ID: **RQ-2022-10-17-41**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-NOV-2022 14:38

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Welaunee Creek

Collection Date/Time: 11/01/2022 09:30

Field ID: G1TLHR0149

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2366362	DEP SOP: NU-094-1	Color (true)	48	A	PCU	P421801	
	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P421806	
	EPA 300.0 Rev. 2.1	Chloride	7.5		mg Cl/L	P422461	
		Sulfate	0.40	I	mg SO4/L	P422465	
	SM 2320 B-2011	Total Alkalinity	8.4		mg CaCO3/L	P422119	
	SM 2540 C-2015	TDS	45		mg/L	P422532	
	SM 2540 D-2015	TSS	4	I	mg/L	P422507	
	SM 4500-F- C-2011	Fluoride	0.095	I	mg F/L	P422020	
2366363	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P422037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P422183	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P421940	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P422074	
	SM 5310 B-2011	Organic Carbon	3.7	A	mg C/L	P422225	
2366370	EPA 8321B	2,4-D	0.0020	U	ug/L	P421744	
		Acesulfame K	0.10	U	ug/L	P421714	
		2,4,5-T	0.0040	U	ug/L	P421744	
		AMPA	0.10	U	ug/L	P421714	
		Acetaminophen	0.0080	U	ug/L	P421744	
		Acetamiprid	0.0020	U	ug/L	P421744	
		Endothall	0.25	U	ug/L	P421714	MS
		Glufosinate	0.10	U	ug/L	P421714	
		Glyphosate	0.10	U	ug/L	P421714	
		Afidopyropen	0.0020	U	ug/L	P421744	
		Bentazon	8.0E-04	U	ug/L	P421744	
		Sucralose	0.035	I	ug/L	P421714	
		Benzovindiflupyr	0.0020	U	ug/L	P421744	
		Carbamazepine	8.0E-04	U	ug/L	P421744	
		Clothianidin	0.0020	U	ug/L	P421744	
		Dinotefuran	0.0020	U	ug/L	P421744	
		Diuron	0.0020	U	ug/L	P421744	
		Fenuron	0.032	U	ug/L	P421744	
		Fluridone	8.0E-04	U	ug/L	P421744	
		Imazapyr	0.0040	U	ug/L	P421744	
		Hydrocodone	0.0020	U	ug/L	P421744	
		Ibuprofen	0.29	I	ug/L	P421744	
		Imidacloprid	0.0091		ug/L	P421744	
		Linuron	0.0040	U	ug/L	P421744	
		Mandestrobin	0.0020	U	ug/L	P421744	
		MCPP	0.0040	U	ug/L	P421744	
		Naproxen	0.0080	U	ug/L	P421744	
		Primidone	0.0040	U	ug/L	P421744	
		Pyraclostrobin	0.0020	U	ug/L	P421744	
		Silvex	0.0040	U	ug/L	P421744	
		Thiamethoxam	0.0020	U	ug/L	P421744	

Field ID: G1TLHR0149

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2366370	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P421744	
		Triclopyr	0.0040	U	ug/L	P421744	
2366371	EPA 200.7 Rev. 4.4	Calcium	3.43		mg/L	P421825	
		Iron	490		ug/L	P421825	
		Magnesium	1.73		mg/L	P421825	
		Potassium	0.50	I	mg/L	P421825	
		Sodium	3.3		mg/L	P421825	
		Strontium	7.6	I	ug/L	P421825	
		Tin	3.0	U	ug/L	P421825	
		Titanium	1.4	I	ug/L	P421825	
		Vanadium	2.0	U	ug/L	P421825	
		Zinc	5.0	U	ug/L	P421825	
	EPA 200.8 Rev. 5.4	Aluminum	128		ug/L	P421825	
		Antimony	0.050	U	ug/L	P421825	
		Arsenic	0.26		ug/L	P421825	
		Barium	9.45		ug/L	P421825	
		Beryllium	0.015	I	ug/L	P421825	
		Boron	13.3		ug/L	P421825	
		Cadmium	0.020	U	ug/L	P421825	
		Chromium	0.40	U	ug/L	P421825	
		Cobalt	0.096		ug/L	P421825	
		Copper	0.40	U	ug/L	P421825	
		Lead	0.20	U	ug/L	P421825	
		Manganese	31.1		ug/L	P421825	
		Molybdenum	0.15	U	ug/L	P421825	
		Nickel	0.50	U	ug/L	P421825	
		Selenium	0.20	U	ug/L	P421825	
		Silver	0.010	U	ug/L	P421825	
		Thallium	0.10	U	ug/L	P421825	
	SM 2340 B-2011	Hardness	15.7		mg/L	P421825	

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: Sally Ward Spring

Collection Date/Time: 11/01/2022 10:40

Field ID: G1TLHR0153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2366364	DEP SOP: NU-094-1	Color (true)	2.5	U	PCU	P421801	
	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P421806	
	EPA 300.0 Rev. 2.1	Chloride	9.9		mg Cl/L	P422461	
		Sulfate	11		mg SO4/L	P422465	
	SM 2320 B-2011	Total Alkalinity	147		mg CaCO3/L	P422006	
	SM 2540 C-2015	TDS	196	A	mg/L	P422532	
	SM 2540 D-2015	TSS	2	UA	mg/L	P422507	
	SM 4500-F- C-2011	Fluoride	0.15		mg F/L	P422020	
2366365	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P422037	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.089	I	mg N/L	P422659	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.66		mg N/L	P422060	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P422074	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P422325	

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: P421801

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421806

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421825

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: P421825

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422037

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422183

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422659

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421940

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422060

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422074

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

Reference Method: EPA 8321B
Batch ID: P421714

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: P421744

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	0.20	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: P422006

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

Reference Method: SM 2320 B-2011

Batch ID: P422119

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

Reference Method: SM 2540 C-2015

Batch ID: P422532

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015

Batch ID: P422507

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P422020

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P422225

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

Reference Method: SM 5310 B-2011
Batch ID: P422325

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: P421801

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: P421806

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	80 - 120
Iron	104		P	80 - 120
Magnesium	102		P	80 - 120
Potassium	102		P	80 - 120
Sodium	106		P	80 - 120
Strontium	101		P	80 - 120
Tin	101		P	80 - 120
Titanium	105		P	80 - 120
Vanadium	101		P	80 - 120
Zinc	96.3		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P421825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.2		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	103		P	85 - 115
Barium	105		P	85 - 115
Beryllium	99.3		P	85 - 115
Boron	98.5		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	104		P	85 - 115
Cobalt	102		P	85 - 115
Copper	105		P	85 - 115
Lead	94.1		P	85 - 115
Manganese	104		P	85 - 115
Molybdenum	98.8		P	85 - 115
Nickel	103		P	85 - 115
Selenium	100		P	85 - 115
Silver	98.8		P	85 - 115
Thallium	97.4		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422037

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422183

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422659

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421940

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422074

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

Reference Method: EPA 8321B
Batch ID: P421714

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	90.2		P	40 - 150
AMPA	116		P	40 - 150
Endothall	101		P	40 - 150
Glufosinate	104		P	40 - 150
Glyphosate	103		P	40 - 150
Sucralose	83.0		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P421744

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.0		P	40 - 150
2,4,5-T	65.3		P	40 - 150
Acetaminophen	98.6		P	30 - 150
Acetamiprid	86.4		P	40 - 150
Afidopyropen	70.5		P	30 - 150
Bentazon	104		P	30 - 150
Benzovindiflupyr	89.0		P	40 - 150
Carbamazepine	93.0		P	40 - 150
Clothianidin	108		P	40 - 150
Dinotefuran	110		P	40 - 150
Diuron	84.6		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	93.7		P	40 - 150
Hydrocodone	103		P	40 - 150
Ibuprofen	73.8		P	40 - 150
Imazapyr	84.4		P	40 - 150
Imidacloprid	102		P	40 - 150
Linuron	98.5		P	40 - 150
Mandestrobin	90.3		P	40 - 150
MCPP	84.7		P	40 - 150
Naproxen	56.9		P	40 - 150
Primidone	99.1		P	40 - 150
Pyraclostrobin	79.2		P	40 - 150
Silvex	62.1		P	40 - 150
Thiamethoxam	102		P	40 - 150
Tolfenpyrad	41.6		P	30 - 150
Triclopyr	61.4		P	40 - 150

Reference Method: SM 2320 B-2011

Batch ID: P422006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.0		P	94 - 106

Reference Method: SM 2320 B-2011

Batch ID: P422119

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	94 - 106

Reference Method: SM 2540 C-2015

Batch ID: P422532

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

Reference Method: SM 2540 D-2015

Batch ID: P422507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	94.8		P	85 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P422020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P422225

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.7		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P422325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P421825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366371	Calcium	92.3	101	P/P	80 - 120
2366371	Iron	96.8	101	P/P	80 - 120
2366371	Magnesium	92.4	98.8	P/P	80 - 120
2366371	Potassium	92.8	97.4	P/P	80 - 120
2366371	Sodium	92.0	100	P/P	80 - 120
2366371	Strontium	94.6	99.2	P/P	80 - 120
2366371	Tin	94.7	98.7	P/P	80 - 120
2366371	Titanium	94.4	101	P/P	80 - 120
2366371	Vanadium	91.9	97.8	P/P	80 - 120
2366371	Zinc	88.2	92.3	P/P	80 - 120
2366813	Calcium	108		P	80 - 120
2366813	Iron	112		P	80 - 120
2366813	Magnesium	109		P	80 - 120
2366813	Potassium	106		P	80 - 120
2366813	Sodium	109		P	80 - 120
2366813	Strontium	109		P	80 - 120
2366813	Tin	109		P	80 - 120
2366813	Titanium	114		P	80 - 120
2366813	Vanadium	110		P	80 - 120
2366813	Zinc	104		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P421825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366371	Aluminum	101	100	P/P	80 - 120
2366371	Antimony	102	102	P/P	80 - 120
2366371	Arsenic	102	102	P/P	80 - 120
2366371	Barium	104	104	P/P	80 - 120
2366371	Beryllium	95.1	94.3	P/P	80 - 120
2366371	Boron	111	110	P/P	80 - 120
2366371	Cadmium	103	101	P/P	80 - 120
2366371	Chromium	102	102	P/P	80 - 120
2366371	Cobalt	99.3	98.7	P/P	80 - 120
2366371	Copper	101	102	P/P	80 - 120
2366371	Lead	97.1	96.7	P/P	80 - 120
2366371	Manganese	103	101	P/P	80 - 120
2366371	Molybdenum	100	100	P/P	80 - 120
2366371	Nickel	100	100	P/P	80 - 120
2366371	Selenium	98.8	98.7	P/P	80 - 120
2366371	Silver	100	99.7	P/P	80 - 120
2366371	Thallium	103	103	P/P	80 - 120
2366813	Aluminum	102		P	80 - 120
2366813	Antimony	102		P	80 - 120
2366813	Arsenic	104		P	80 - 120
2366813	Barium	104		P	80 - 120
2366813	Beryllium	95.4		P	80 - 120
2366813	Boron	112		P	80 - 120
2366813	Cadmium	102		P	80 - 120
2366813	Chromium	101		P	80 - 120
2366813	Cobalt	99.0		P	80 - 120
2366813	Copper	101		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P421825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366813	Lead	97.6		P	80 - 120
2366813	Manganese	103		P	80 - 120
2366813	Molybdenum	99.7		P	80 - 120
2366813	Nickel	99.5		P	80 - 120
2366813	Selenium	96.6		P	80 - 120
2366813	Silver	99.4		P	80 - 120
2366813	Thallium	104		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366626	Chloride	99.1		P	90 - 110
2366743	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366626	Sulfate	100		P	90 - 110
2366743	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366365	Ammonia-N	95.8	94.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422183

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366628	Kjeldahl Nitrogen	101	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2368401	Kjeldahl Nitrogen	104	116	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366298	NO2NO3-N	106	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366629	NO2NO3-N	107	106	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422074

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366363	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P421714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366047	Acesulfame K	76.5	77.7	P/P	40 - 150
2366047	AMPA	85.9	92.7	P/P	40 - 150
2366047	Endothall	193	193	F/F	40 - 150
2366047	Glufosinate	81.1	90.0	P/P	40 - 150
2366047	Glyphosate	85.5	95.0	P/P	40 - 150
2366047	Sucralose	92.2	94.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P421744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366175	2,4-D	81.1	106	P/P	40 - 150
2366175	2,4,5-T	66.7	79.3	P/P	40 - 150
2366175	Acetaminophen	106	108	P/P	30 - 150
2366175	Acetamiprid	85.2	105	P/P	40 - 150
2366175	Afidopyrophen	67.8	78.2	P/P	30 - 150
2366175	Bentazon	103	115	P/P	30 - 150
2366175	Benzovindiflupyr	102	106	P/P	40 - 150
2366175	Carbamazepine	110	107	P/P	40 - 150
2366175	Clothianidin	118	140	P/P	40 - 150
2366175	Dinotefuran	121	131	P/P	40 - 150
2366175	Diuron	91.2	94.9	P/P	40 - 150
2366175	Fenuron	114	127	P/P	40 - 150
2366175	Fluridone	113	113	P/P	40 - 150
2366175	Hydrocodone	114	132	P/P	40 - 150
2366175	Ibuprofen	75.2	93.0	P/P	40 - 150
2366175	Imazapyr	102	115	P/P	40 - 150
2366175	Imidacloprid	112	118	P/P	40 - 150
2366175	Linuron	97.8	94.9	P/P	40 - 150
2366175	Mandestrobin	94.4	104	P/P	40 - 150
2366175	MCPP	95.6	111	P/P	40 - 150
2366175	Naproxen	80.3	79.0	P/P	40 - 150
2366175	Primidone	98.9	119	P/P	40 - 150
2366175	Pyraclostrobin	95.8	98.8	P/P	40 - 150
2366175	Silvex	66.8	75.0	P/P	40 - 150
2366175	Thiamethoxam	118	126	P/P	40 - 150
2366175	Tolfenpyrad	54.8	51.4	P/P	30 - 150
2366175	Triclopyr	66.7	80.8	P/P	40 - 150

Reference Method: SM 4500-F- C-2011
Batch ID: P422020

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366166	Fluoride	102	102	P/P	94 - 104

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P422225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366363	Organic Carbon	98.1		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P422325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2366802	Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P421801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366362	Color (true)	0.871	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P421806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366353	Turbidity	10.6	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P421825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366371	Calcium	4.91	Spike	P	0 - 20
2366371	Iron	4.19	Spike	P	0 - 20
2366371	Magnesium	4.63	Spike	P	0 - 20
2366371	Potassium	4.23	Spike	P	0 - 20
2366371	Sodium	4.55	Spike	P	0 - 20
2366371	Strontium	4.69	Spike	P	0 - 20
2366371	Tin	4.16	Spike	P	0 - 20
2366371	Titanium	6.24	Spike	P	0 - 20
2366371	Vanadium	6.21	Spike	P	0 - 20
2366371	Zinc	4.60	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P421825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366371	Aluminum	0.649	Spike	P	0 - 20
2366371	Antimony	0.121	Spike	P	0 - 20
2366371	Arsenic	0.394	Spike	P	0 - 20
2366371	Barium	0.283	Spike	P	0 - 20
2366371	Beryllium	0.814	Spike	P	0 - 20
2366371	Boron	0.925	Spike	P	0 - 20
2366371	Cadmium	2.09	Spike	P	0 - 20
2366371	Chromium	0.0312	Spike	P	0 - 20
2366371	Cobalt	0.637	Spike	P	0 - 20
2366371	Copper	0.802	Spike	P	0 - 20
2366371	Lead	0.446	Spike	P	0 - 20
2366371	Manganese	1.51	Spike	P	0 - 20
2366371	Molybdenum	0.00258	Spike	P	0 - 20
2366371	Nickel	0.155	Spike	P	0 - 20
2366371	Selenium	0.152	Spike	P	0 - 20
2366371	Silver	0.610	Spike	P	0 - 20
2366371	Thallium	0.224	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366626	Chloride	0.154	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P422465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366626	Sulfate	0.227	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366365	Ammonia-N	0.985	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366628	Kjeldahl Nitrogen	1.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2368401	Kjeldahl Nitrogen	6.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P421940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366298	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366629	NO2NO3-N	0.800	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366363	Total-P	0.344	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P421714

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366047	Acesulfame K	1.55	Spike	P	0 - 30
2366047	AMPA	6.57	Spike	P	0 - 30
2366047	Endothall	0.162	Spike	P	0 - 30
2366047	Glufosinate	10.4	Spike	P	0 - 30
2366047	Glyphosate	8.88	Spike	P	0 - 30
2366047	Sucralose	2.44	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P421744

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366175	2,4-D	26.5	Spike	P	0 - 30
2366175	2,4,5-T	17.2	Spike	P	0 - 30
2366175	Acetaminophen	2.11	Spike	P	0 - 30
2366175	Acetamiprid	20.6	Spike	P	0 - 30
2366175	Afidopyropen	14.3	Spike	P	0 - 30
2366175	Bentazon	11.3	Spike	P	0 - 30
2366175	Benzovindiflupyr	3.60	Spike	P	0 - 30
2366175	Carbamazepine	2.56	Spike	P	0 - 30
2366175	Clothianidin	16.9	Spike	P	0 - 30
2366175	Dinotefuran	7.94	Spike	P	0 - 30
2366175	Diuron	4.05	Spike	P	0 - 30
2366175	Fenuron	11.0	Spike	P	0 - 30
2366175	Fluridone	0.401	Spike	P	0 - 30
2366175	Hydrocodone	15.2	Spike	P	0 - 30
2366175	Ibuprofen	21.2	Spike	P	0 - 30
2366175	Imazapyr	11.9	Spike	P	0 - 30
2366175	Imidacloprid	5.22	Spike	P	0 - 30
2366175	Linuron	2.97	Spike	P	0 - 30
2366175	Mandestrobin	9.28	Spike	P	0 - 30
2366175	MCPP	14.8	Spike	P	0 - 30
2366175	Naproxen	1.64	Spike	P	0 - 30
2366175	Primidone	18.3	Spike	P	0 - 30
2366175	Pyraclostrobin	2.98	Spike	P	0 - 30
2366175	Silvex	11.6	Spike	P	0 - 30
2366175	Thiamethoxam	6.73	Spike	P	0 - 30
2366175	Tolfenpyrad	6.48	Spike	P	0 - 30
2366175	Triclopyr	19.1	Spike	P	0 - 30

Reference Method: SM 2320 B-2011

Batch ID: P422006

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366166	Total Alkalinity	0.668	Sample	P	0 - 3.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P422119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366911	Total Alkalinity	0.228	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P422532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366364	TDS	1.02	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P422020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366166	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P422225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366363	Organic Carbon	1.73	Sample	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P422325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2366802	Organic Carbon	1.26	Sample	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2366370

Field Sample ID: G1TLHR0149

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	115	P	30 - 160
EPA 8321B	Carbamazepine-d10	96.9	P	30 - 160
EPA 8321B	Diuron-d6	76.1	P	30 - 160
EPA 8321B	Endothall-d6	113	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	104	P	30 - 160
EPA 8321B	Ibuprofen-d3	76.0	P	30 - 160
EPA 8321B	Primidone-d5	117	P	30 - 160
EPA 8321B	Sucralose-d6	80.8	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A115693

Included Lab Sample IDs: 2366362, 2366364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A115694

Included Lab Sample IDs: 2366362, 2366364

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

Reference Method: EPA 8321B

Run ID: A115696

Included Lab Sample IDs: 2366370

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	103	105	P/P	60 - 160
Endothall	96.2	107	P/P	60 - 160
Glufosinate	88.4	98.6	P/P	60 - 160
Glyphosate	101	100	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A115702

Included Lab Sample IDs: 2366370

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	99.3	106	P/P	50 - 150
2,4,5-T	101	97.6	P/P	50 - 150
Acetaminophen	109	124	P/P	60 - 160
Acetamiprid	118	114	P/P	50 - 150
Afidopyropen	107	124	P/P	50 - 150
Bentazon	115	117	P/P	50 - 160
Benzovindiflupyr	117	119	P/P	50 - 150
Carbamazepine	118	116	P/P	60 - 150
Clothianidin	126	125	P/P	60 - 150
Dinotefuran	124	140	P/P	50 - 150
Diuron	104	108	P/P	60 - 160
Fenuron	113	109	P/P	60 - 150
Fluridone	109	114	P/P	60 - 160
Hydrocodone	114	118	P/P	60 - 150
Ibuprofen	77.7	98.7	P/P	50 - 160
Imazapyr	107	114	P/P	50 - 150
Imidacloprid	104	108	P/P	60 - 150
Linuron	120	107	P/P	60 - 150
Mandestrobin	106	109	P/P	50 - 150
MCPP	99.3	107	P/P	50 - 150
Naproxen	104	85.2	P/P	50 - 160
Primidone	115	107	P/P	60 - 150
Pyraclostrobin	111	114	P/P	60 - 150
Silvex	93.8	89.1	P/P	50 - 150
Thiamethoxam	113	115	P/P	50 - 150
Tolfenpyrad	116	117	P/P	60 - 150
Triclopyr	98.4	101	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115752

Included Lab Sample IDs: 2366363

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A115769

Included Lab Sample IDs: 2366371

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	103	P/P	90 - 110
Antimony	98.8	99.5	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Barium	102	100	P/P	90 - 110
Beryllium	102	99.1	P/P	90 - 110
Boron	101	110	P/P	90 - 110
Cadmium	100	102	P/P	90 - 110
Chromium	99.6	98.4	P/P	90 - 110
Cobalt	98.7	97.1	P/P	90 - 110
Copper	101	97.9	P/P	90 - 110
Lead	93.5	93.9	P/P	90 - 110
Manganese	97.7	101	P/P	90 - 110
Molybdenum	101	101	P/P	90 - 110
Nickel	102	98.1	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Silver	98.7	99.4	P/P	90 - 110
Thallium	99.6	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115774

Included Lab Sample IDs: 2366364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.1	97.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A115774

Included Lab Sample IDs: 2366362, 2366364

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A115780

Included Lab Sample IDs: 2366371

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	93.6	103	P/P	90 - 110
Iron	95.6	104	P/P	90 - 110
Magnesium	92.8	101	P/P	90 - 110
Potassium	93.6	99.9	P/P	90 - 110
Sodium	95.4	104	P/P	90 - 110
Strontium	96.0	103	P/P	90 - 110
Tin	92.5	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A115780

Included Lab Sample IDs: 2366371

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Titanium	98.6	106	P/P	90 - 110
Vanadium	96.3	105	P/P	90 - 110
Zinc	91.5	99.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A115783

Included Lab Sample IDs: 2366370

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	86.9	87.9	P/P	60 - 160
Sucralose	80.8	80.9	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115789

Included Lab Sample IDs: 2366363, 2366365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115805

Included Lab Sample IDs: 2366365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	107	106	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A115822

Included Lab Sample IDs: 2366362

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.9	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115830

Included Lab Sample IDs: 2366363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.7	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115837

Included Lab Sample IDs: 2366365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A115874

Included Lab Sample IDs: 2366363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.8	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A115934

Included Lab Sample IDs: 2366365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A115939

Included Lab Sample IDs: 2366362, 2366364

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	97.5	P/P	90 - 110
Sulfate	102	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115995

Included Lab Sample IDs: 2366363

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	93.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A116110

Included Lab Sample IDs: 2366365

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.8	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
DEP SOP: NU-094-1	Color (true)	100					0.871	
EPA 180.1 Rev. 2.0	Turbidity	102					10.6	
EPA 200.7 Rev. 4.4	Calcium	103	92.3	101	108			4.91
	Iron	104	96.8	101	112			4.19
	Magnesium	102	92.4	98.8	109			4.63
	Potassium	102	92.8	97.4	106			4.23
	Sodium	106	92.0	100	109			4.55
	Strontium	101	94.6	99.2	109			4.69
	Tin	101	94.7	98.7	109			4.16
	Titanium	105	94.4	101	114			6.24
	Vanadium	101	91.9	97.8	110			6.21
	Zinc	96.3	88.2	92.3	104			4.60
EPA 200.8 Rev. 5.4	Aluminum	99.2	101	100	102			0.649
	Antimony	101	102	102	102			0.121
	Arsenic	103	102	102	104			0.394
	Barium	105	104	104	104			0.283
	Beryllium	99.3	95.1	94.3	95.4			0.814
	Boron	98.5	111	110	112			0.925
	Cadmium	98.2	103	101	102			2.09
	Chromium	104	102	102	101			0.0312
	Cobalt	102	99.3	98.7	99.0			0.637
	Copper	105	101	102	101			0.802
	Lead	94.1	97.1	96.7	97.6			0.446
	Manganese	104	103	101	103			1.51
	Molybdenum	98.8	100	100	99.7			0.0025
	Nickel	103	100	100	99.5			0.155
	Selenium	100	98.8	98.7	96.6			0.152
	Silver	98.8	100	99.7	99.4			0.610
	Thallium	97.4	103	103	104			0.224
EPA 300.0 Rev. 2.1	Chloride	102	99.1	101			0.154	
	Sulfate	104	100	108			0.227	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	95.8	94.8				0.985
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	101	98.5				1.47
	Kjeldahl Nitrogen	100	104	116				6.32
EPA 353.2 Rev. 2.0	NO2NO3-N	107	106	107				0.468
	NO2NO3-N	108	107	106				0.800
EPA 365.1 Rev. 2.0	Total-P	106	108	108				0.344
EPA 8321B	2,4-D	78.0	81.1	106				26.5
	2,4,5-T	65.3	66.7	79.3				17.2
	Acesulfame K	90.2	76.5	77.7				1.55
	Acetaminophen	98.6	106	108				2.11
	Acetamiprid	86.4	85.2	105				20.6
	Afidopyropen	70.5	67.8	78.2				14.3
	AMPA	116	85.9	92.7				6.57
	Bentazon	104	103	115				11.3
	Benzovindiflupyr	89.0	102	106				3.60
	Carbamazepine	93.0	110	107				2.56
	Clothianidin	108	118	140				16.9
	Dinotefuran	110	121	131				7.94
	Diuron	84.6	91.2	94.9				4.05
	Endothall	101	193	193				0.162
	Fenuron	110	114	127				11.0
	Fluridone	93.7	113	113				0.401
	Glufosinate	104	81.1	90.0				10.4

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
EPA 8321B	Glyphosate	103	85.5	95.0			8.88
	Hydrocodone	103	114	132			15.2
	Ibuprofen	73.8	75.2	93.0			21.2
	Imazapyr	84.4	102	115			11.9
	Imidacloprid	102	112	118			5.22
	Linuron	98.5	97.8	94.9			2.97
	Mandestrobin	90.3	94.4	104			9.28
	MCP	84.7	95.6	111			14.8
	Naproxen	56.9	80.3	79.0			1.64
	Primidone	99.1	98.9	119			18.3
	Pyraclostrobin	79.2	95.8	98.8			2.98
	Silvex	62.1	66.8	75.0			11.6
	Sucralose	83.0	92.2	94.6			2.44
	Thiamethoxam	102	118	126			6.73
	Tolfenpyrad	41.6	54.8	51.4			6.48
	Triclopyr	61.4	66.7	80.8			19.1
SM 2320 B-2011	Total Alkalinity	98.0				0.668	
	Total Alkalinity	98.4				0.228	
SM 2540 C-2015	TDS	96.7				1.02	
SM 2540 D-2015	TSS	94.8					
SM 4500-F- C-2011	Fluoride	101	102	102			0.0
SM 5310 B-2011	Organic Carbon	97.7	98.1			1.73	
	Organic Carbon	95.9	98.1			1.26	

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2366362, 2366364
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2366362, 2366364
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2366371
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2366371
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2366362, 2366364
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2366362, 2366364
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2366363, 2366365
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2366363, 2366365
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2366363, 2366365
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2366363, 2366365
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2366370
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2366362, 2366364
SM 2340 B-2011	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2366371
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2366362, 2366364
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2366362, 2366364
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2366362, 2366364
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2366363, 2366365

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	11/01/2022			11/02/2022 15:19	Chandler E Cox	2366362
	11/01/2022			11/02/2022 15:25	Chandler E Cox	2366364
EPA 180.1 Rev. 2.0	11/01/2022			11/02/2022 14:18	Khloe J Berg	2366362
	11/01/2022			11/02/2022 14:22	Khloe J Berg	2366364
EPA 200.7 Rev. 4.4	11/01/2022	11/03/2022 10:50	George D Taylor	11/07/2022 02:37	McKinley C Carter	2366371
EPA 200.8 Rev. 5.4	11/01/2022	11/03/2022 10:50	George D Taylor	11/04/2022 16:14	Megan Whitefoot	2366371
EPA 300.0 Rev. 2.1	11/01/2022			11/15/2022 23:32	Anna M. Plaviak	2366362
	11/01/2022			11/15/2022 23:47	Anna M. Plaviak	2366364
EPA 350.1 Rev. 2.0	11/01/2022			11/07/2022 14:27	Ping Hua	2366365
	11/01/2022			11/07/2022 14:37	Ping Hua	2366363
EPA 351.2 Rev. 2.0	11/01/2022	11/10/2022 13:05	Samantha L Bates	11/17/2022 13:10	Alexandra J Mattheus	2366363
	11/01/2022	11/21/2022 14:39	Alexandra J Mattheus	11/22/2022 15:39	Judith K. Clark	2366365
EPA 353.2 Rev. 2.0	11/01/2022			11/04/2022 11:52	Beverly Y. Sanders	2366363
	11/01/2022			11/08/2022 09:50	Beverly Y. Sanders	2366365
EPA 365.1 Rev. 2.0	11/01/2022	11/08/2022 13:18	Adam P Silver	11/09/2022 10:40	James L Waggeberby	2366363
	11/01/2022	11/08/2022 13:18	Adam P Silver	11/09/2022 14:58	James L Waggeberby	2366365
EPA 8321B	11/01/2022	11/02/2022 09:30	June Rhew	11/02/2022 19:29	Juyoung Kim	2366370
	11/01/2022	11/02/2022 12:00	Umesh Chiluwal	11/02/2022 15:35	Umesh Chiluwal	2366370
	11/01/2022	11/02/2022 12:00	Umesh Chiluwal	11/03/2022 07:40	Umesh Chiluwal	2366370
SM 2320 B-2011	11/01/2022			11/05/2022 19:05	Dale L. Simmons	2366364
	11/01/2022			11/09/2022 02:05	Dale L. Simmons	2366362
SM 2340 B-2011	11/01/2022			11/07/2022 02:37	McKinley C Carter	2366371
SM 2540 C-2015	11/01/2022			11/07/2022 15:45	Yijie Li	2366362, 2366364
SM 2540 D-2015	11/01/2022			11/07/2022 15:45	Yijie Li	2366362, 2366364
SM 4500-F- C-2011	11/01/2022			11/05/2022 18:51	Dale L. Simmons	2366362
	11/01/2022			11/05/2022 19:05	Dale L. Simmons	2366364
SM 5310 B-2011	11/01/2022			11/10/2022 17:59	Khloe J Berg	2366363
	11/01/2022			11/14/2022 20:29	Khloe J Berg	2366365