

Chemical Analysis Report

SO-DIST-2021-10-22-02

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

Event Description: **2021 SMP : Myakka Cricks**

Request ID: **RQ-2021-10-18-51**

Customer: **SO-DIST**

Project ID: **SMP**

Send Reports to:

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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Date Certified: 17-NOV-2021 10:20



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: Little Alligator Creek @ Midway Blvd

Collection Date/Time: 10/21/2021 09:25

Field ID: G3SD0071

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285752	EPA 180.1 Rev. 2.0	Turbidity	1.6	A	NTU	P405497	
	SM 2320 B-2011	Total Alkalinity	156		mg CaCO3/L	P405814	
	SM 2540 D-2011	TSS	3	UA	mg/L	P405633	
	SM 4500 F-C-2011	Fluoride	0.73		mg F/L	P405816	
2285753	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P406063	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P405818	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.043		mg N/L	P405807	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P405791	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P405775	
2285754	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P405494	
2285762	EPA 200.7 Rev. 4.4	Calcium	222		mg/L	P405697	
		Iron	110	I	ug/L	P405697	
		Magnesium	476		mg/L	P405697	
		Strontium	4.23E+03		ug/L	P405697	
		Tin	30	U	ug/L	P405697	
		Vanadium	6.0	U	ug/L	P405697	
		Zinc	15	U	ug/L	P405697	
	EPA 200.8 Rev. 5.4	Aluminum	32	I	ug/L	P405697	
		Antimony	0.23	I	ug/L	P405697	
		Arsenic	2.19		ug/L	P405697	
		Beryllium	0.040	U	ug/L	P405697	
		Cadmium	0.080	U	ug/L	P405697	
		Chromium	4.0	U	ug/L	P405697	
		Cobalt	0.080	U	ug/L	P405697	
		Copper	1.6	U	ug/L	P405697	
		Lead	0.80	U	ug/L	P405697	
		Manganese	23.1		ug/L	P405697	
		Molybdenum	5.8		ug/L	P405697	
		Nickel	2.0	U	ug/L	P405697	
		Selenium	0.80	U	ug/L	P405697	
		Silver	0.040	U	ug/L	P405697	
		Thallium	0.40	U	ug/L	P405697	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium and strontium are unavailable because of high analyte concentration in the QC sample.

Sample Location: Rock Creek @ Eisenhower Dr

Collection Date/Time: 10/21/2021 10:05

Field ID: G3SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285749	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P405496	
	SM 2320 B-2011	Total Alkalinity	83		mg CaCO3/L	P405793	
	SM 2540 D-2011	TSS	5	I	mg/L	P405634	
	SM 4500 F-C-2011	Fluoride	0.33		mg F/L	P405795	
2285750	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P405856	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P406010	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P405807	
	EPA 365.1 Rev. 2.0	Total-P	0.31		mg P/L	P405508	
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P405771	
2285751	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.23		mg P/L	P405494	
2285759	EPA 8321B	Acesulfame K	0.10	U	ug/L	P405460	
		2,4-D	0.011		ug/L	P405462	
		AMPA	1.0	U	ug/L	P405460	
		2,4,5-T	0.0040	U	ug/L	P405462	
		Acetaminophen	0.0080	U	ug/L	P405462	
		Endothall	0.25	U	ug/L	P405460	
		Acetamiprid	0.0020	U	ug/L	P405462	
		Glufosinate	1.0	U	ug/L	P405460	
		Glyphosate	1.0	U	ug/L	P405460	
		Afidopyropen	0.0020	U	ug/L	P405462	
		Sucralose	0.22		ug/L	P405460	
		Bentazon	0.011		ug/L	P405462	
		Benzovindiflupyr	0.0020	U	ug/L	P405462	
		Carbamazepine	0.0031	I	ug/L	P405462	
		Clothianidin	0.0020	U	ug/L	P405462	
		Dinotefuran	0.016		ug/L	P405462	
		Diuron	0.0091		ug/L	P405462	
		Fenuron	0.016	U	ug/L	P405462	
		Fluridone	0.0048		ug/L	P405462	
		Imazapyr	0.023		ug/L	P405462	
		Hydrocodone	0.0020	U	ug/L	P405462	
		Ibuprofen	0.020	U	ug/L	P405462	
		Imidacloprid	0.020		ug/L	P405462	MS
		Linuron	0.0040	U	ug/L	P405462	
		Mandestrobin	0.0020	U	ug/L	P405462	
		MCP	0.0040	U	ug/L	P405462	
		Naproxen	0.0080	U	ug/L	P405462	
		Primidone	0.0040	U	ug/L	P405462	RPD
		Pyraclostrobin	0.0020	U	ug/L	P405462	
		Thiamethoxam	0.0054	I	ug/L	P405462	MS
		Tolfenpyrad	0.0020	U	ug/L	P405462	
		Triclopyr	0.0040	U	ug/L	P405462	
2285761	EPA 200.7 Rev. 4.4	Calcium	86.2		mg/L	P405555	

Field ID: G3SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285761	EPA 200.7 Rev. 4.4	Iron	530		ug/L	P405555	
		Magnesium	135		mg/L	P405555	
		Strontium	2.11E+03		ug/L	P405555	
		Tin	6.0	U	ug/L	P405555	
		Vanadium	2.0	U	ug/L	P405555	
	EPA 200.8 Rev. 5.4	Zinc	5.4	I	ug/L	P405555	
		Aluminum	90		ug/L	P405555	
		Antimony	0.096	I	ug/L	P405555	
		Arsenic	1.86		ug/L	P405555	
		Beryllium	0.016	I	ug/L	P405555	
		Cadmium	0.020	U	ug/L	P405555	
		Chromium	0.58	I	ug/L	P405555	
		Cobalt	0.115		ug/L	P405555	
		Copper	0.70	I	ug/L	P405555	
		Lead	0.20	U	ug/L	P405555	
		Manganese	12.7		ug/L	P405555	
		Molybdenum	1.68		ug/L	P405555	
		Nickel	0.55	I	ug/L	P405555	
		Selenium	0.20	U	ug/L	P405555	
		Silver	0.010	U	ug/L	P405555	
		Thallium	0.10	U	ug/L	P405555	

Ref. Method and Comment:

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

EPA 8321B: MDL for some parameters elevated due to matrix interference.

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

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for copper are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: FB_10212021

Collection Date/Time: 10/21/2021 10:15

Field ID: FB_10212021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2285760	EPA 8321B	2,4-D	0.0020	U	ug/L	P405462	
		Acesulfame K	0.10	U	ug/L	P405460	
		2,4,5-T	0.0040	U	ug/L	P405462	
		AMPA	0.10	U	ug/L	P405460	
		Acetaminophen	0.0080	U	ug/L	P405462	
		Acetamiprid	0.0020	U	ug/L	P405462	
		Endothall	0.25	U	ug/L	P405460	
		Glufosinate	0.10	U	ug/L	P405460	
		Glyphosate	0.10	U	ug/L	P405460	
		Afidopyropen	0.0020	U	ug/L	P405462	
		Bentazon	8.0E-04	U	ug/L	P405462	
		Sucralose	0.010	U	ug/L	P405460	
		Benzovindiflupyr	0.0020	U	ug/L	P405462	
		Carbamazepine	8.0E-04	U	ug/L	P405462	
		Clothianidin	0.0020	U	ug/L	P405462	
		Dinotefuran	0.0020	U	ug/L	P405462	
		Diuron	0.0020	U	ug/L	P405462	
		Fenuron	0.016	U	ug/L	P405462	
		Fluridone	8.0E-04	U	ug/L	P405462	
		Imazapyr	0.0040	U	ug/L	P405462	
		Hydrocodone	0.0020	U	ug/L	P405462	
		Ibuprofen	0.020	U	ug/L	P405462	
		Imidacloprid	0.0020	U	ug/L	P405462	MS
		Linuron	0.0040	U	ug/L	P405462	
		Mandestrobin	0.0020	U	ug/L	P405462	
		MCPP	0.0040	U	ug/L	P405462	
		Naproxen	0.0080	U	ug/L	P405462	
		Primidone	0.0040	U	ug/L	P405462	RPD
		Pyraclostrobin	0.0020	U	ug/L	P405462	
		Thiamethoxam	0.0020	U	ug/L	P405462	MS
		Tolfenpyrad	0.0020	U	ug/L	P405462	
		Triclopyr	0.0040	U	ug/L	P405462	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P405496

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P405497

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P405555

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	U	ug/L
Vanadium	2.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P405697

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Strontium	2.0	U	ug/L
Tin	3.0	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: P405555

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	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 200.8 Rev. 5.4
Batch ID: P405697

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	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 350.1 Rev. 2.0
Batch ID: P405856

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406063

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405818

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406010

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405807

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405508

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P405791

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P405494

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B

Batch ID: P405460

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: P405462

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	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	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
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P405793

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

Reference Method: SM 2320 B-2011
Batch ID: P405814

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

Reference Method: SM 2540 D-2011
Batch ID: P405633

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P405634

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405795

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405816

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P405771

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

Reference Method: SM 5310 B-2011
Batch ID: P405775

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P405555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	110		P	85 - 115
Magnesium	106		P	85 - 115
Strontium	106		P	85 - 115
Tin	107		P	85 - 115
Vanadium	108		P	85 - 115
Zinc	108		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P405697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	101		P	85 - 115
Iron	101		P	85 - 115
Magnesium	102		P	85 - 115
Strontium	106		P	85 - 115
Tin	108		P	85 - 115
Vanadium	106		P	85 - 115
Zinc	108		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P405555

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	103		P	85 - 115
Beryllium	102		P	85 - 115
Cadmium	97.8		P	85 - 115
Chromium	96.1		P	85 - 115
Cobalt	100		P	85 - 115
Copper	101		P	85 - 115
Lead	94.8		P	85 - 115
Manganese	94.2		P	85 - 115
Molybdenum	102		P	85 - 115
Nickel	101		P	85 - 115
Selenium	100		P	85 - 115
Silver	96.6		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P405697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	107		P	85 - 115
Antimony	108		P	85 - 115
Arsenic	104		P	85 - 115
Beryllium	100		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	102		P	85 - 115
Cobalt	101		P	85 - 115
Copper	102		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P405697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Lead	101		P	85 - 115
Manganese	99.1		P	85 - 115
Molybdenum	104		P	85 - 115
Nickel	94.8		P	85 - 115
Selenium	102		P	85 - 115
Silver	103		P	85 - 115
Thallium	109		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405856

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406063

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405818

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406010

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405807

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405791

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P405460

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	76.6		P	40 - 150
AMPA	100		P	40 - 160
Endothall	66.6		P	40 - 150
Glufosinate	110		P	40 - 160
Glyphosate	89.0		P	40 - 160
Sucralose	91.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P405462

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	128		P	40 - 150
2,4,5-T	123		P	40 - 150
Acetaminophen	89.6		P	30 - 150
Acetamiprid	100		P	40 - 150
Afidopyropen	81.4		P	40 - 150
Bentazon	98.3		P	30 - 150
Benzovindiflupyr	98.1		P	40 - 150
Carbamazepine	112		P	40 - 150
Clothianidin	94.7		P	40 - 150
Dinotefuran	93.3		P	40 - 150
Diuron	97.1		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	105		P	40 - 150
Hydrocodone	96.2		P	40 - 150
Ibuprofen	77.9		P	40 - 150
Imazapyr	106		P	40 - 150
Imidacloprid	108		P	40 - 150
Linuron	111		P	40 - 150
Mandestrobin	103		P	40 - 150
MCPP	124		P	40 - 150
Naproxen	70.6		P	40 - 150
Primidone	91.7		P	40 - 150
Pyraclostrobin	90.4		P	40 - 150
Thiamethoxam	108		P	40 - 150
Tolfenpyrad	58.9		P	30 - 150
Triclopyr	105		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P405793

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P405814

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P405795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P405816

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P405771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P405775

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P405555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285544	Calcium	104		P	80 - 120
2285544	Iron	104	112	P/P	80 - 120
2285544	Magnesium	105		P	80 - 120
2285544	Strontium	99.7	105	P/P	80 - 120
2285544	Tin	103	108	P/P	80 - 120
2285544	Vanadium	103	109	P/P	80 - 120
2285544	Zinc	101	108	P/P	80 - 120
2285737	Calcium	108		P	80 - 120
2285737	Iron	111		P	80 - 120
2285737	Magnesium	109		P	80 - 120
2285737	Strontium	104		P	80 - 120
2285737	Tin	110		P	80 - 120
2285737	Vanadium	113		P	80 - 120
2285737	Zinc	110		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P405697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285349	Iron	111	104	P/P	70 - 130
2285349	Tin	87.0	88.3	P/P	70 - 130
2285349	Vanadium	105	104	P/P	70 - 130
2285349	Zinc	101	100	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P405555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285544	Aluminum	99.8	98.0	P/P	80 - 120
2285544	Antimony	105	105	P/P	80 - 120
2285544	Arsenic	103	103	P/P	80 - 120
2285544	Beryllium	100	98.6	P/P	80 - 120
2285544	Cadmium	100	100	P/P	80 - 120
2285544	Chromium	99.7	99.2	P/P	80 - 120
2285544	Cobalt	98.8	98.5	P/P	80 - 120
2285544	Copper	98.4	97.6	P/P	80 - 120
2285544	Lead	95.0	93.9	P/P	80 - 120
2285544	Manganese	96.8	97.1	P/P	80 - 120
2285544	Molybdenum	104	105	P/P	80 - 120
2285544	Nickel	97.6	96.9	P/P	80 - 120
2285544	Selenium	100	98.0	P/P	80 - 120
2285544	Silver	96.9	96.9	P/P	80 - 120
2285544	Thallium	104	104	P/P	80 - 120
2285737	Aluminum	104		P	80 - 120
2285737	Antimony	106		P	80 - 120
2285737	Arsenic	107		P	80 - 120
2285737	Beryllium	104		P	80 - 120
2285737	Cadmium	101		P	80 - 120
2285737	Chromium	101		P	80 - 120
2285737	Cobalt	102		P	80 - 120
2285737	Lead	96.8		P	80 - 120
2285737	Manganese	98.4		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P405555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285737	Molybdenum	107		P	80 - 120
2285737	Nickel	102		P	80 - 120
2285737	Selenium	102		P	80 - 120
2285737	Silver	98.5		P	80 - 120
2285737	Thallium	105		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P405697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285349	Aluminum	111	124	P/P	70 - 130
2285349	Antimony	115	127	P/P	70 - 130
2285349	Arsenic	107	107	P/P	70 - 130
2285349	Beryllium	113	123	P/P	70 - 130
2285349	Cadmium	107	117	P/P	70 - 130
2285349	Chromium	101	120	P/P	70 - 130
2285349	Cobalt	110	122	P/P	70 - 130
2285349	Copper	103	114	P/P	70 - 130
2285349	Lead	113	126	P/P	70 - 130
2285349	Manganese	90.5	106	P/P	70 - 130
2285349	Molybdenum	113	125	P/P	70 - 130
2285349	Nickel	103	103	P/P	70 - 130
2285349	Selenium	101	112	P/P	70 - 130
2285349	Silver	96.8	105	P/P	70 - 130
2285349	Thallium	112	113	P/P	70 - 130

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P405856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285312	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P406063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2287093	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P405818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285753	Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P406010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2286370	Kjeldahl Nitrogen	102	97.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285753	NO2NO3-N	99.6	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285300	Total-P	101	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2281624	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285677	O-Phosphate-P	97.8	97.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P405460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285715	Acesulfame K	88.2	80.8	P/P	40 - 150
2285715	AMPA	83.8	82.3	P/P	40 - 160
2285715	Endothall	92.7	95.1	P/P	40 - 150
2285715	Glufosinate	111	104	P/P	40 - 160
2285715	Glyphosate	57.8	57.2	P/P	40 - 160
2285715	Sucralose	99.6	98.2	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P405462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285006	2,4-D	129	129	P/P	40 - 150
2285006	2,4,5-T	127	138	P/P	40 - 150
2285006	Acetaminophen	102	114	P/P	30 - 150
2285006	Acetamiprid	104	107	P/P	40 - 150
2285006	Afidopyropen	86.0	96.9	P/P	40 - 150
2285006	Benzovindiflupyr	79.5	79.3	P/P	40 - 150
2285006	Carbamazepine	97.6	110	P/P	40 - 150
2285006	Clothianidin	108	108	P/P	40 - 150
2285006	Dinotefuran	119	125	P/P	40 - 150
2285006	Diuron	66.9	68.6	P/P	40 - 150
2285006	Fenuron	87.0	95.3	P/P	40 - 150
2285006	Fluridone	72.8	89.3	P/P	40 - 150
2285006	Hydrocodone	100	107	P/P	40 - 150
2285006	Ibuprofen	77.3	68.1	P/P	40 - 150
2285006	Imidacloprid	194	211	F/F	40 - 150
2285006	Linuron	87.7	94.4	P/P	40 - 150
2285006	Mandestrobin	82.7	85.3	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P405462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285006	MCP	128	135	P/P	40 - 150
2285006	Naproxen	84.2	83.7	P/P	40 - 150
2285006	Primidone	66.9	122	P/P	40 - 150
2285006	Pyraclostrobin	74.6	79.8	P/P	40 - 150
2285006	Thiamethoxam	157	170	F/F	40 - 150
2285006	Tolfenpyrad	52.3	56.2	P/P	30 - 150
2285006	Triclopyr	112	126	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P405795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285786	Fluoride	100	101	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P405816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285671	Fluoride	97.1	97.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P405771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285750	Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P405775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2285672	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P405496

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285669	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P405497

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285752	Turbidity	10.1	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P405555

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285544	Calcium	4.95	Spike	P	0 - 20
2285544	Iron	6.95	Spike	P	0 - 20
2285544	Magnesium	7.03	Spike	P	0 - 20
2285544	Strontium	4.65	Spike	P	0 - 20
2285544	Tin	4.61	Spike	P	0 - 20
2285544	Vanadium	5.72	Spike	P	0 - 20
2285544	Zinc	6.65	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P405697

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285349	Calcium	1.39	Spike	P	0 - 20
2285349	Iron	1.81	Spike	P	0 - 20
2285349	Magnesium	1.94	Spike	P	0 - 20
2285349	Strontium	1.04	Spike	P	0 - 20
2285349	Tin	1.47	Spike	P	0 - 20
2285349	Vanadium	0.730	Spike	P	0 - 20
2285349	Zinc	0.593	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P405555

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285544	Aluminum	1.88	Spike	P	0 - 20
2285544	Antimony	0.456	Spike	P	0 - 20
2285544	Arsenic	0.764	Spike	P	0 - 20
2285544	Beryllium	1.45	Spike	P	0 - 20
2285544	Cadmium	0.184	Spike	P	0 - 20
2285544	Chromium	0.448	Spike	P	0 - 20
2285544	Cobalt	0.321	Spike	P	0 - 20
2285544	Copper	0.815	Spike	P	0 - 20
2285544	Lead	1.15	Spike	P	0 - 20
2285544	Manganese	0.300	Spike	P	0 - 20
2285544	Molybdenum	0.486	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P405555

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285544	Nickel	0.735	Spike	P	0 - 20
2285544	Selenium	2.32	Spike	P	0 - 20
2285544	Silver	0.00336	Spike	P	0 - 20
2285544	Thallium	0.0166	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P405697

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285349	Aluminum	9.26	Spike	P	0 - 20
2285349	Antimony	9.99	Spike	P	0 - 20
2285349	Arsenic	0.0743	Spike	P	0 - 20
2285349	Beryllium	8.73	Spike	P	0 - 20
2285349	Cadmium	9.10	Spike	P	0 - 20
2285349	Chromium	17.2	Spike	P	0 - 20
2285349	Cobalt	9.71	Spike	P	0 - 20
2285349	Copper	10.3	Spike	P	0 - 20
2285349	Lead	10.3	Spike	P	0 - 20
2285349	Manganese	10.4	Spike	P	0 - 20
2285349	Molybdenum	9.73	Spike	P	0 - 20
2285349	Nickel	0.107	Spike	P	0 - 20
2285349	Selenium	9.91	Spike	P	0 - 20
2285349	Silver	8.55	Spike	P	0 - 20
2285349	Thallium	1.27	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P405856

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285312	Ammonia-N	1.42	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P406063

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2287093	Ammonia-N	1.87	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P405818

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285753	Kjeldahl Nitrogen	1.05	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2286370	Kjeldahl Nitrogen	3.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285753	NO2NO3-N	1.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285300	Total-P	2.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2281624	Total-P	0.148	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285677	O-Phosphate-P	0.412	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P405460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285715	Acesulfame K	8.83	Spike	P	0 - 30
2285715	AMPA	1.22	Spike	P	0 - 30
2285715	Endothall	2.51	Spike	P	0 - 30
2285715	Glufosinate	7.08	Spike	P	0 - 30
2285715	Glyphosate	0.552	Spike	P	0 - 30
2285715	Sucralose	1.43	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P405462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285006	2,4-D	0.0340	Spike	P	0 - 30
2285006	2,4,5-T	8.19	Spike	P	0 - 30
2285006	Acetaminophen	11.0	Spike	P	0 - 30
2285006	Acetamidrid	2.65	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P405462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285006	Afidopyropen	11.9	Spike	P	0 - 30
2285006	Bentazon	6.64	Spike	P	0 - 30
2285006	Benzovindiflupyr	0.205	Spike	P	0 - 30
2285006	Carbamazepine	11.1	Spike	P	0 - 30
2285006	Clothianidin	0.776	Spike	P	0 - 30
2285006	Dinotefuran	4.50	Spike	P	0 - 30
2285006	Diuron	2.18	Spike	P	0 - 30
2285006	Fenuron	9.07	Spike	P	0 - 30
2285006	Fluridone	11.1	Spike	P	0 - 30
2285006	Hydrocodone	6.39	Spike	P	0 - 30
2285006	Ibuprofen	12.6	Spike	P	0 - 30
2285006	Imazapyr	7.50	Spike	P	0 - 30
2285006	Imidacloprid	7.58	Spike	P	0 - 30
2285006	Linuron	7.27	Spike	P	0 - 30
2285006	Mandestrobin	3.01	Spike	P	0 - 30
2285006	MCPP	5.13	Spike	P	0 - 30
2285006	Naproxen	0.519	Spike	P	0 - 30
2285006	Primidone	54.0	Spike	F	0 - 30
2285006	Pyraclostrobin	6.78	Spike	P	0 - 30
2285006	Thiamethoxam	7.69	Spike	P	0 - 30
2285006	Tolfenpyrad	7.11	Spike	P	0 - 30
2285006	Triclopyr	12.0	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P405793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285786	Total Alkalinity	1.63	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P405814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285671	Total Alkalinity	1.83	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P405795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285786	Fluoride	0.492	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P405816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285671	Fluoride	0.473	Spike	P	0 - 2.1

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P405771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285750	Organic Carbon	0.801	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P405775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2285672	Organic Carbon	0.264	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2285759

Field Sample ID: G3SD0070

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	118	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	87.1	P	30 - 160
EPA 8321B	Endothall-d6	99.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	56.8	P	30 - 160
EPA 8321B	Ibuprofen-d3	70.3	P	30 - 160
EPA 8321B	Primidone-d5	96.8	P	30 - 160
EPA 8321B	Sucralose-d6	88.5	P	30 - 160

Lab Sample ID: 2285760

Field Sample ID: FB_10212021

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	104	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.3	P	30 - 160
EPA 8321B	Carbamazepine-d10	97.8	P	30 - 160
EPA 8321B	Diuron-d6	76.7	P	30 - 160
EPA 8321B	Endothall-d6	66.3	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	91.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	83.1	P	30 - 160
EPA 8321B	Primidone-d5	97.3	P	30 - 160
EPA 8321B	Sucralose-d6	87.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A108478

Included Lab Sample IDs: 2285759, 2285760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	92.7	97.6	P/P	60 - 160
Glufosinate	106	117	P/P	60 - 160
Glyphosate	81.4	91.7	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108496

Included Lab Sample IDs: 2285751, 2285754

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108498

Included Lab Sample IDs: 2285749, 2285752

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A108503

Included Lab Sample IDs: 2285759, 2285760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	106	91.6	P/P	60 - 160
Acesulfame K	91.6	81.6	P/P	60 - 160
Endothall	74.0	77.1	P/P	60 - 160
Endothall	77.1	67.0	P/P	60 - 160
Sucralose	90.4	89.7	P/P	60 - 160
Sucralose	90.5	90.4	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108525

Included Lab Sample IDs: 2285750

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108549

Included Lab Sample IDs: 2285761

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	105	P/P	90 - 110
Antimony	104	102	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Beryllium	99.5	101	P/P	90 - 110
Cadmium	98.5	98.0	P/P	90 - 110
Chromium	96.7	96.7	P/P	90 - 110
Cobalt	97.0	98.6	P/P	90 - 110
Copper	98.2	101	P/P	90 - 110
Lead	92.6	92.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108549

Included Lab Sample IDs: 2285761

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Manganese	97.0	97.6	P/P	90 - 110
Molybdenum	101	101	P/P	90 - 110
Nickel	97.3	99.7	P/P	90 - 110
Selenium	99.5	99.3	P/P	90 - 110
Silver	97.0	96.6	P/P	90 - 110
Thallium	102	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108571

Included Lab Sample IDs: 2285761

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	107	107	P/P	90 - 110
Iron	106	105	P/P	90 - 110
Magnesium	109	109	P/P	90 - 110
Strontium	105	104	P/P	90 - 110
Vanadium	105	106	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A108578

Included Lab Sample IDs: 2285759, 2285760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	118	108	P/P	50 - 150
2,4,5-T	107	116	P/P	50 - 150
Acetaminophen	82.5	88.5	P/P	60 - 160
Acetamiprid	99.8	107	P/P	50 - 150
Afidopyropen	94.5	88.8	P/P	50 - 150
Bentazon	102	115	P/P	50 - 160
Benzovindiflupyr	107	113	P/P	50 - 150
Carbamazepine	105	106	P/P	60 - 150
Clothianidin	111	110	P/P	60 - 150
Dinotefuran	108	98.5	P/P	50 - 150
Diuron	100	105	P/P	60 - 160
Fenuron	93.7	101	P/P	60 - 150
Fluridone	104	104	P/P	60 - 160
Hydrocodone	90.1	96.3	P/P	60 - 150
Ibuprofen	86.4	71.3	P/P	50 - 160
Imazapyr	86.6	87.3	P/P	50 - 150
Imidacloprid	96.2	100	P/P	60 - 150
Linuron	91.2	112	P/P	60 - 150
Mandestrobin	97.1	101	P/P	50 - 150
MCPP	104	110	P/P	50 - 150
Naproxen	112	70.2	P/P	50 - 160
Primidone	125	123	P/P	60 - 150
Pyraclostrobin	102	105	P/P	60 - 150
Thiamethoxam	96.6	101	P/P	50 - 150
Tolfenpyrad	98.3	108	P/P	60 - 150
Triclopyr	99.3	116	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108604

Included Lab Sample IDs: 2285761

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

Reference Method: SM 5310 B-2011

Run ID: A108621

Included Lab Sample IDs: 2285750

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.4	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A108622

Included Lab Sample IDs: 2285753

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

Reference Method: SM 2320 B-2011

Run ID: A108640

Included Lab Sample IDs: 2285752

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

Reference Method: SM 4500 F-C-2011

Run ID: A108640

Included Lab Sample IDs: 2285752

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

Reference Method: SM 2320 B-2011

Run ID: A108642

Included Lab Sample IDs: 2285749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.8	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108642

Included Lab Sample IDs: 2285749

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108647

Included Lab Sample IDs: 2285750, 2285753

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108653

Included Lab Sample IDs: 2285762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	105	105	P/P	90 - 110
Antimony	104	105	P/P	90 - 110
Beryllium	101	99.1	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Chromium	101	95.6	P/P	90 - 110
Cobalt	97.3	96.1	P/P	90 - 110
Copper	101	98.2	P/P	90 - 110
Lead	95.6	96.2	P/P	90 - 110
Manganese	94.2	92.3	P/P	90 - 110
Molybdenum	102	101	P/P	90 - 110
Selenium	102	101	P/P	90 - 110
Silver	99.9	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108661

Included Lab Sample IDs: 2285753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108662

Included Lab Sample IDs: 2285750

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	97.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108667

Included Lab Sample IDs: 2285761, 2285762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	106	106	P/P	90 - 110
Tin	103	103	P/P	90 - 110
Zinc	102	104	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A108668

Included Lab Sample IDs: 2285762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	95.0	94.2	P/P	90 - 110
Nickel	95.6	94.9	P/P	90 - 110
Thallium	98.8	96.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108702

Included Lab Sample IDs: 2285762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	108	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A108702

Included Lab Sample IDs: 2285762

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	105	P/P	90 - 110
Strontium	102	104	P/P	90 - 110
Vanadium	103	105	P/P	90 - 110
Zinc	106	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108720

Included Lab Sample IDs: 2285753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108742

Included Lab Sample IDs: 2285750

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108743

Included Lab Sample IDs: 2285753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	96.8	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
EPA 180.1 Rev. 2.0	Turbidity						0.0	
	Turbidity						10.1	
EPA 200.7 Rev. 4.4	Calcium	107		104	108			4.95
	Calcium	101						1.39
	Iron	110		104	112	111		6.95
	Iron	101		111	104			1.81
	Magnesium	106		105	109			7.03
	Magnesium	102						1.94
	Strontium	106		99.7	105	104		4.65
	Strontium	106						1.04
	Tin	107		103	108	110		4.61
	Tin	108		87.0	88.3			1.47
	Vanadium	108		103	109	113		5.72
	Vanadium	106		105	104			0.730
	Zinc	108		101	108	110		6.65
	Zinc	108		101	100			0.593
EPA 200.8 Rev. 5.4	Aluminum	101		99.8	98.0	104		1.88
	Aluminum	107		111	124			9.26
	Antimony	102		105	105	106		0.456
	Antimony	108		115	127			9.99
	Arsenic	103		103	103	107		0.764
	Arsenic	104		107	107			0.0743
	Beryllium	102		100	98.6	104		1.45
	Beryllium	100		113	123			8.73
	Cadmium	97.8		100	100	101		0.184
	Cadmium	104		107	117			9.10
	Chromium	96.1		99.7	99.2	101		0.448
	Chromium	102		101	120			17.2
	Cobalt	100		98.8	98.5	102		0.321
	Cobalt	101		110	122			9.71
	Copper	101		98.4	97.6			0.815
	Copper	102		103	114			10.3
	Lead	94.8		95.0	93.9	96.8		1.15
	Lead	101		113	126			10.3
	Manganese	94.2		96.8	97.1	98.4		0.300
	Manganese	99.1		90.5	106			10.4
	Molybdenum	102		104	105	107		0.486
	Molybdenum	104		113	125			9.73
	Nickel	101		97.6	96.9	102		0.735
	Nickel	94.8		103	103			0.107
	Selenium	100		100	98.0	102		2.32
	Selenium	102		101	112			9.91
	Silver	96.6		96.9	96.9	98.5		0.0033
	Silver	103		96.8	105			8.55
	Thallium	102		104	104	105		0.0166
	Thallium	109		112	113			1.27
EPA 350.1 Rev. 2.0	Ammonia-N	98.0		104	106			1.42
	Ammonia-N	98.4		102	100			1.87
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102		103	101			1.05
	Kjeldahl Nitrogen	104		102	97.7			3.30
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5		99.6	98.2			1.25
EPA 365.1 Rev. 2.0	Total-P	105		101	98.8			2.03
	Total-P	103		105	105			0.148
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.6		97.8	97.3			0.412

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 8321B	2,4-D	128	129	129			0.0340
	2,4,5-T	123	127	138			8.19
	Acesulfame K	76.6	88.2	80.8			8.83
	Acetaminophen	89.6	102	114			11.0
	Acetamiprid	100	104	107			2.65
	Afidopyropen	81.4	86.0	96.9			11.9
	AMPA	100	83.8	82.3			1.22
	Bentazon	98.3					6.64
	Benzovindiflupyr	98.1	79.5	79.3			0.205
	Carbamazepine	112	97.6	110			11.1
	Clothianidin	94.7	108	108			0.776
	Dinotefuran	93.3	119	125			4.50
	Diuron	97.1	66.9	68.6			2.18
	Endothall	66.6	92.7	95.1			2.51
	Fenuron	109	87.0	95.3			9.07
	Fluridone	105	72.8	89.3			11.1
	Glufosinate	110	111	104			7.08
	Glyphosate	89.0	57.8	57.2			0.552
	Hydrocodone	96.2	100	107			6.39
	Ibuprofen	77.9	77.3	68.1			12.6
	Imazapyr	106					7.50
	Imidacloprid	108	194	211			7.58
	Linuron	111	87.7	94.4			7.27
	Mandestrobin	103	82.7	85.3			3.01
	MCPP	124	128	135			5.13
	Naproxen	70.6	84.2	83.7			0.519
	Primidone	91.7	66.9	122			54.0
	Pyraclostrobin	90.4	74.6	79.8			6.78
	Sucralose	91.0	99.6	98.2			1.43
	Thiamethoxam	108	157	170			7.69
	Tolfenpyrad	58.9	52.3	56.2			7.11
	Triclopyr	105	112	126			12.0
SM 2320 B-2011	Total Alkalinity	98.4				1.63	
	Total Alkalinity	99.7				1.83	
SM 4500 F-C-2011	Fluoride	99.8	100	101			0.492
	Fluoride	102	97.1	97.8			0.473
SM 5310 B-2011	Organic Carbon	96.0	102				0.801
	Organic Carbon	105	102	102			0.264

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2285749, 2285752
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2285761, 2285762
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2285761, 2285762
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2285750, 2285753
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2285750, 2285753
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2285750, 2285753
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2285750, 2285753
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2285751, 2285754

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2285759, 2285760
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2285749, 2285752
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2285749, 2285752
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2285749, 2285752
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2285750, 2285753

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	10/22/2021			10/22/2021 16:47	Khloe J Berg	2285749, 2285752
EPA 200.7 Rev. 4.4	10/22/2021	10/26/2021 10:15	Emily M Philpot	10/28/2021 01:32	Josef B Mick	2285761
	10/22/2021	10/26/2021 10:15	Emily M Philpot	10/28/2021 01:40	Josef B Mick	2285761
	10/22/2021	10/26/2021 10:15	Emily M Philpot	10/28/2021 22:20	Josef B Mick	2285761
	10/22/2021	10/26/2021 10:15	Emily M Philpot	11/03/2021 00:24	Josef B Mick	2285761
	10/22/2021	10/28/2021 09:15	Emily M Philpot	11/02/2021 21:47	Josef B Mick	2285762
	10/22/2021	10/28/2021 09:15	Emily M Philpot	11/02/2021 21:55	Josef B Mick	2285762
	10/22/2021	10/28/2021 09:15	Emily M Philpot	11/03/2021 19:34	Josef B Mick	2285762
EPA 200.8 Rev. 5.4	10/22/2021	10/26/2021 10:15	Emily M Philpot	10/26/2021 19:43	Alexander Thompson	2285761
	10/22/2021	10/28/2021 09:15	Emily M Philpot	11/01/2021 16:50	Alexander Thompson	2285762
	10/22/2021	10/28/2021 09:15	Emily M Philpot	11/01/2021 18:25	Alexander Thompson	2285762
	10/22/2021	10/28/2021 09:15	Emily M Philpot	11/02/2021 13:37	Alexander Thompson	2285762
EPA 350.1 Rev. 2.0	10/22/2021			11/02/2021 11:20	Ping Hua	2285750
	10/22/2021			11/04/2021 11:33	Ping Hua	2285753
EPA 351.2 Rev. 2.0	10/22/2021	11/01/2021 12:32	Benjamin T. Nordmann	11/02/2021 11:08	Alexandra J Mattheus	2285753
	10/22/2021	11/04/2021 12:46	Benjamin T. Nordmann	11/05/2021 11:25	Alexandra J Mattheus	2285750
EPA 353.2 Rev. 2.0	10/22/2021			11/01/2021 10:35	Beverly Y. Sanders	2285753
	10/22/2021			11/01/2021 10:41	Beverly Y. Sanders	2285750
EPA 365.1 Rev. 2.0	10/22/2021	10/25/2021 13:13	Simonne.V. Calhoun	10/26/2021 10:16	Lipi Saha	2285750
	10/22/2021	11/02/2021 16:18	Simonne.V. Calhoun	11/03/2021 16:22	Sarah A Nixon	2285753
EPA 365.1 Rev. 2.0 dissolved	10/22/2021			10/22/2021 15:30	James L Waggeberby	2285751
	10/22/2021			10/22/2021 15:33	James L Waggeberby	2285754
EPA 8321B	10/22/2021	10/22/2021 11:50	Juyoung Kim	10/22/2021 13:02	Juyoung Kim	2285759
	10/22/2021	10/22/2021 11:50	Juyoung Kim	10/22/2021 13:12	Juyoung Kim	2285760
	10/22/2021	10/22/2021 11:50	Juyoung Kim	10/22/2021 22:00	Manjita Shrestha	2285759
	10/22/2021	10/22/2021 11:50	Juyoung Kim	10/22/2021 22:30	Manjita Shrestha	2285760
	10/22/2021	10/26/2021 11:00	Hoor Shaik	10/28/2021 20:02	Juyoung Kim	2285759
	10/22/2021	10/26/2021 11:00	Hoor Shaik	10/28/2021 20:36	Juyoung Kim	2285760
SM 2320 B-2011	10/22/2021			10/28/2021 00:54	Dale L. Simmons	2285752
	10/22/2021			10/28/2021 21:45	Dale L. Simmons	2285749
SM 2540 D-2011	10/22/2021			10/25/2021 17:00	Simonne.V. Calhoun	2285749, 2285752
SM 4500 F-C-2011	10/22/2021			10/27/2021 22:49	Dale L. Simmons	2285752
	10/22/2021			10/28/2021 21:45	Dale L. Simmons	2285749
SM 5310 B-2011	10/22/2021			10/28/2021 03:25	Khloe J Berg	2285750
	10/22/2021			10/29/2021 06:34	Khloe J Berg	2285753