

Chemical Analysis Report

SW-DIST-2021-08-25-01

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

Event Description: **SMP Run 19**
Request ID: **RQ-2021-07-12-05**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-SEP-2021 13:56

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Indian Creek @ Fruitville Rd

Collection Date/Time: 08/24/2021 10:15

Field ID: G3SW0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2271805	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P402981	
	EPA 300.0 Rev. 2.1	Chloride	6.2		mg Cl/L	P403238	
	SM 2120 B-2011	Color (true)	370		PCU	P402989	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P403060	
	SM 2540 C-2011	TDS	106		mg/L	P403400	
	SM 2540 D-2011	TSS	7	I	mg/L	P403393	
	SM 4500 F-C-2011	Fluoride	0.14		mg F/L	P403064	
2271806	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P403139	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P403265	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P403073	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P403373	
2271807	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.39		mg P/L	P402970	
2271845	EPA 200.7 Rev. 4.4	Barium	4.1		ug/L	P403028	
		Calcium	9.02		mg/L	P403028	
		Iron	1.68E+03		ug/L	P403028	
		Magnesium	3.54		mg/L	P403028	
		Potassium	1.1	I	mg/L	P403028	
		Sodium	3.6		mg/L	P403028	
		Zinc	7.3	I	ug/L	P403028	
	EPA 200.8 Rev. 5.4	Aluminum	327		ug/L	P403028	
		Antimony	0.053	I	ug/L	P403028	
		Arsenic	1.69		ug/L	P403028	
		Boron**	15.6		ug/L	P403028	
		Cadmium	0.020	U	ug/L	P403028	
		Chromium	1.1	I	ug/L	P403028	
		Copper	2.39		ug/L	P403028	
		Lead	0.31	I	ug/L	P403028	
		Nickel	0.51	I	ug/L	P403028	
		Selenium	0.20	U	ug/L	P403028	
		Silver	0.010	U	ug/L	P403028	
		Thallium	0.10	U	ug/L	P403028	
		Hardness	37.1		mg/L	P403028	
	SM 2340B						

Ref. Method and Comment:

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

Sample Location: Phillippi Creek @ Bee Ridge

Collection Date/Time: 08/24/2021 11:05

Field ID: G3SW0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2271832	EPA 8321B	2,4-D	0.047		ug/L	P403027	
		Acesulfame K	0.14	I	ug/L	P402974	
		2,4,5-T	0.0040	U	ug/L	P403027	
		AMPA	0.99		ug/L	P402974	
		Acetaminophen	0.054		ug/L	P403027	
		Acetamiprid	0.0020	U	ug/L	P403027	
		Endothall	0.25	U	ug/L	P402974	
		Glufosinate	0.10	U	ug/L	P402974	
		Glyphosate	2.7		ug/L	P402974	
		Afidopyropen	0.0020	U	ug/L	P403027	
		Bentazon	0.077		ug/L	P403027	
		Sucralose	0.94		ug/L	P402974	
		Benzovindiflupyr	0.0020	U	ug/L	P403027	
		Carbamazepine	0.0044		ug/L	P403027	
		Clothianidin	0.0064	I	ug/L	P403027	
		Dinotefuran	0.0020	U	ug/L	P403027	
		Diuron	0.024		ug/L	P403027	
		Fenuron	0.016	U	ug/L	P403027	
		Fluridone	0.063		ug/L	P403027	
		Imazapyr	0.65		ug/L	P403027	
		Hydrocodone	0.0020	U	ug/L	P403027	
		Ibuprofen	0.020	U	ug/L	P403027	
		Imidacloprid	0.068		ug/L	P403027	
		Linuron	0.0040	U	ug/L	P403027	
		Mandestrobin	0.0020	U	ug/L	P403027	
		MCPP	0.0027	I	ug/L	P403027	
		Naproxen	0.0080	U	ug/L	P403027	
		Primidone	0.0040	U	ug/L	P403027	MS, RPD
		Pyraclostrobin	0.0020	U	ug/L	P403027	
		Thiamethoxam	0.0033	I	ug/L	P403027	
		Tolfenpyrad	0.0020	U	ug/L	P403027	
		Triclopyr	0.0040	U	ug/L	P403027	

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.

Sample Location: Hudson Bayou Tidal by Marie Selby Botanical Garden
Collection Date/Time: 08/24/2021 11:40

Field ID: G3SW0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2271808	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P402982	
	SM 2320 B-2011	Total Alkalinity	146	A	mg CaCO3/L	P403061	
	SM 2540 D-2011	TSS	9.8	IA	mg/L	P403399	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P403065	
2271810	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P403135	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P403308	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P403010	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P403084	
	SM 5310 B-2011	Organic Carbon	7.1		mg C/L	P403118	
2271812	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.094		mg P/L	P402972	
2271857	EPA 8321B	Acesulfame K	0.10	U	ug/L	P402974	
		2,4-D	0.0062	I	ug/L	P403027	
		AMPA	10	U	ug/L	P402974	
		2,4,5-T	0.0040	U	ug/L	P403027	
		Acetaminophen	0.039		ug/L	P403027	
		Endothall	0.25	U	ug/L	P402974	
		Acetamiprid	0.0020	U	ug/L	P403027	
		Glufosinate	10	U	ug/L	P402974	
		Glyphosate	10	U	ug/L	P402974	
		Afidopyropen	0.0020	U	ug/L	P403027	
		Sucralose	0.21		ug/L	P402974	
		Bentazon	0.018		ug/L	P403027	
		Benzovindiflupyr	0.0020	U	ug/L	P403027	
		Carbamazepine	8.0E-04	U	ug/L	P403027	
		Clothianidin	0.014		ug/L	P403027	
		Dinotefuran	0.0020	U	ug/L	P403027	
		Diuron	0.0065	I	ug/L	P403027	
		Fenuron	0.016	U	ug/L	P403027	
		Fluridone	0.0028	I	ug/L	P403027	
		Imazapyr	0.040		ug/L	P403027	
		Hydrocodone	0.0020	U	ug/L	P403027	
		Ibuprofen	0.020	U	ug/L	P403027	
		Imidacloprid	0.023		ug/L	P403027	
		Linuron	0.0040	U	ug/L	P403027	
		Mandestrobin	0.0020	U	ug/L	P403027	
		MCP	0.0020	U	ug/L	P403027	
		Naproxen	0.0080	U	ug/L	P403027	
		Primidone	0.0040	U	ug/L	P403027	MS, RPD
		Pyraclostrobin	0.0020	U	ug/L	P403027	
		Thiamethoxam	0.0020	U	ug/L	P403027	
		Tolfenpyrad	0.0020	U	ug/L	P403027	
		Triclopyr	0.0040	U	ug/L	P403027	

Field ID: G3SW0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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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.

Sample Location: Island Park Boat Basin off Dock

Collection Date/Time: 08/24/2021 12:20

Field ID: G3SW0061

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2271809	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P402982	
	SM 2320 B-2011	Total Alkalinity	125		mg CaCO3/L	P403061	
	SM 2540 D-2011	TSS	3	U	mg/L	P403399	
	SM 4500 F-C-2011	Fluoride	1.2		mg F/L	P403065	
2271811	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P403135	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P403308	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P403010	
	EPA 365.1 Rev. 2.0	Total-P	0.057		mg P/L	P403084	
	SM 5310 B-2011	Organic Carbon	3.8		mg C/L	P403118	
2271813	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P402972	
2271846	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P403025	
		Manganese	5.0	I	ug/L	P403025	
		Zinc	144		ug/L	P403025	
	EPA 200.8 Rev. 5.4	Aluminum	50	U	ug/L	P403025	
		Antimony	0.25	I	ug/L	P403025	
		Arsenic	2.64		ug/L	P403025	
		Cadmium	0.080	U	ug/L	P403025	
		Chromium	1.6	U	ug/L	P403025	
		Copper	1.6	U	ug/L	P403025	
		Lead	2.0	U	ug/L	P403025	
		Nickel	2.0	U	ug/L	P403025	
		Selenium	0.80	U	ug/L	P403025	
		Silver	0.040	U	ug/L	P403025	
		Thallium	1.0	U	ug/L	P403025	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P402981

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P402982

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403025

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403028

Component	Result	Code	Units
Barium	1.0	U	ug/L
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
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403025

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403028

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403028

Component	Result	Code	Units
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	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: P403238

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403135

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403139

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403265

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403308

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403010

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403073

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403084

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402970

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402972

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

Reference Method: EPA 8321B

Batch ID: P402974

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: P403027

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	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P403027

Component	Result	Code	Units
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B-2011
Batch ID: P402989

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P403060

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

Reference Method: SM 2320 B-2011
Batch ID: P403061

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

Reference Method: SM 2540 C-2011
Batch ID: P403400

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P403393

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P403399

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403064

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P403065

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P403118

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

Reference Method: SM 5310 B-2011
Batch ID: P403373

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: P403025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115
Manganese	101		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	89.9		P	85 - 115
Iron	106		P	85 - 115
Magnesium	89.1		P	85 - 115
Potassium	103		P	85 - 115
Sodium	90.6		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	97.5		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	102		P	85 - 115
Copper	101		P	85 - 115
Lead	97.9		P	85 - 115
Nickel	101		P	85 - 115
Selenium	97.6		P	85 - 115
Silver	99.6		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	101		P	85 - 115
Boron	99.9		P	85 - 115
Cadmium	99.7		P	85 - 115
Chromium	98.2		P	85 - 115
Copper	99.9		P	85 - 115
Lead	100		P	85 - 115
Nickel	101		P	85 - 115
Selenium	100		P	85 - 115
Silver	105		P	85 - 115
Thallium	103		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403238

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403135

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403139

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: P403265

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: P403308

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P403084

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402970

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P402972

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

Reference Method: EPA 8321B
Batch ID: P402974

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	78.6		P	40 - 150
AMPA	82.4		P	40 - 150
Endothall	68.1		P	40 - 150
Glufosinate	105		P	40 - 150
Glyphosate	107		P	40 - 150
Sucralose	90.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P403027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	92.8		P	40 - 150
2,4,5-T	106		P	40 - 150
Acetaminophen	80.2		P	30 - 150
Acetamiprid	96.1		P	40 - 150
Afidopyropen	83.2		P	40 - 150
Bentazon	119		P	30 - 150
Benzovindiflupyr	94.7		P	40 - 150
Carbamazepine	85.8		P	40 - 150
Clothianidin	98.4		P	40 - 150
Dinotefuran	84.8		P	40 - 150
Diuron	79.0		P	40 - 150
Fenuron	94.5		P	40 - 150
Fluridone	100		P	40 - 150
Hydrocodone	77.7		P	40 - 150
Ibuprofen	54.6		P	40 - 150
Imazapyr	85.0		P	40 - 150
Imidacloprid	97.3		P	40 - 150
Linuron	83.9		P	40 - 150
Mandestrobin	95.1		P	40 - 150
MCPP	91.7		P	40 - 150
Naproxen	98.6		P	40 - 150
Primidone	84.9		P	40 - 150
Pyraclostrobin	87.5		P	40 - 150
Thiamethoxam	92.7		P	40 - 150
Tolfenpyrad	51.5		P	30 - 150
Triclopyr	97.3		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P402989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P403060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P403061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P403064

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P403065

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P403118

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P403373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271791	Iron	100	98.1	P/P	70 - 130
2271791	Manganese	94.5	93.6	P/P	70 - 130
2271791	Zinc	115	114	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P403028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271803	Barium	100		P	80 - 120
2271803	Calcium	98.6		P	80 - 120
2271803	Iron	107		P	80 - 120
2271803	Magnesium	108		P	80 - 120
2271803	Potassium	105		P	80 - 120
2271803	Sodium	99.3		P	80 - 120
2271803	Zinc	102		P	80 - 120
2271907	Barium	98.7	99.2	P/P	80 - 120
2271907	Calcium	97.2		P	80 - 120
2271907	Iron	106	105	P/P	80 - 120
2271907	Magnesium	99.0		P	80 - 120
2271907	Potassium	103	102	P/P	80 - 120
2271907	Sodium	101		P	80 - 120
2271907	Zinc	97.1	98.5	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271791	Aluminum	111	108	P/P	70 - 130
2271791	Antimony	104	103	P/P	70 - 130
2271791	Arsenic	110	108	P/P	70 - 130
2271791	Cadmium	94.9	94.1	P/P	70 - 130
2271791	Chromium	104	103	P/P	70 - 130
2271791	Copper	109	108	P/P	70 - 130
2271791	Lead	107	106	P/P	70 - 130
2271791	Nickel	112	110	P/P	70 - 130
2271791	Selenium	104	101	P/P	70 - 130
2271791	Silver	91.9	90.3	P/P	70 - 130
2271791	Thallium	109	110	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271803	Aluminum	102		P	80 - 120
2271803	Antimony	104		P	80 - 120
2271803	Arsenic	102		P	80 - 120
2271803	Boron	107		P	80 - 120
2271803	Cadmium	104		P	80 - 120
2271803	Chromium	101		P	80 - 120
2271803	Copper	99.4		P	80 - 120
2271803	Lead	105		P	80 - 120
2271803	Nickel	101		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P403028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271803	Selenium	100		P	80 - 120
2271803	Silver	105		P	80 - 120
2271803	Thallium	112		P	80 - 120
2271907	Aluminum	100	102	P/P	80 - 120
2271907	Antimony	106	108	P/P	80 - 120
2271907	Arsenic	103	106	P/P	80 - 120
2271907	Boron	105	107	P/P	80 - 120
2271907	Cadmium	103	107	P/P	80 - 120
2271907	Chromium	103	106	P/P	80 - 120
2271907	Copper	98.4	101	P/P	80 - 120
2271907	Lead	104	105	P/P	80 - 120
2271907	Nickel	100	102	P/P	80 - 120
2271907	Selenium	101	103	P/P	80 - 120
2271907	Silver	104	105	P/P	80 - 120
2271907	Thallium	109	112	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P403238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271671	Chloride	101		P	90 - 110
2271970	Chloride	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403135

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271811	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P403139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271794	Ammonia-N	94.6	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271748	Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P403308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271764	Kjeldahl Nitrogen	96.1	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P403010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271765	NO2NO3-N	97.8	97.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P403073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271675	NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272046	Total-P	107	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271821	O-Phosphate-P	97.0	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271813	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P402974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271284	Acesulfame K	56.7	57.9	P/P	40 - 150
2271284	AMPA	91.0	91.7	P/P	40 - 150
2271284	Endothall	101	103	P/P	40 - 150
2271284	Glufosinate	107	106	P/P	40 - 150
2271284	Glyphosate	108	110	P/P	40 - 150
2271284	Sucralose	93.6	94.0	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P403027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271466	2,4-D	105	96.8	P/P	40 - 150
2271466	2,4,5-T	111	101	P/P	40 - 150
2271466	Acetaminophen	81.5	84.3	P/P	30 - 150
2271466	Acetamiprid	91.7	84.6	P/P	40 - 150
2271466	Afidopyropen	111	99.8	P/P	40 - 150
2271466	Benzovindiflupyr	92.0	95.7	P/P	40 - 150
2271466	Carbamazepine	88.7	92.1	P/P	40 - 150
2271466	Clothianidin	68.7	70.6	P/P	40 - 150
2271466	Diuron	89.8	87.8	P/P	40 - 150
2271466	Fenuron	99.3	95.6	P/P	40 - 150
2271466	Fluridone	94.8	100	P/P	40 - 150
2271466	Hydrocodone	98.2	87.5	P/P	40 - 150
2271466	Ibuprofen	70.5	65.9	P/P	40 - 150
2271466	Imidacloprid	92.3	91.1	P/P	40 - 150
2271466	Linuron	99.3	77.0	P/P	40 - 150
2271466	Mandestrobin	104	101	P/P	40 - 150
2271466	MCP	118	110	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P403027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271466	Naproxen	94.3	87.8	P/P	40 - 150
2271466	Primidone	32.3	50.6	F/P	40 - 150
2271466	Pyraclostrobin	91.3	87.3	P/P	40 - 150
2271466	Thiamethoxam	99.5	90.5	P/P	40 - 150
2271466	Tolfenpyrad	52.1	52.1	P/P	30 - 150
2271466	Triclopyr	106	96.9	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P403064

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271893	Fluoride	100	99.4	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P403065

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271785	Fluoride	99.6	102	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P403118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2272068	Organic Carbon	94.8	96.0	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P403373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2271437	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P402981

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271759	Turbidity	2.23	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P402982

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271808	Turbidity	7.74	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403025

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271791	Iron	1.90	Spike	P	0 - 20
2271791	Manganese	0.935	Spike	P	0 - 20
2271791	Zinc	0.863	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P403028

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271907	Barium	0.516	Spike	P	0 - 20
2271907	Calcium	0.684	Spike	P	0 - 20
2271907	Iron	0.379	Spike	P	0 - 20
2271907	Magnesium	1.07	Spike	P	0 - 20
2271907	Potassium	0.357	Spike	P	0 - 20
2271907	Sodium	0.600	Spike	P	0 - 20
2271907	Zinc	1.44	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403025

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271791	Aluminum	2.98	Spike	P	0 - 20
2271791	Antimony	0.766	Spike	P	0 - 20
2271791	Arsenic	1.44	Spike	P	0 - 20
2271791	Cadmium	0.812	Spike	P	0 - 20
2271791	Chromium	0.930	Spike	P	0 - 20
2271791	Copper	0.813	Spike	P	0 - 20
2271791	Lead	0.527	Spike	P	0 - 20
2271791	Nickel	1.26	Spike	P	0 - 20
2271791	Selenium	3.04	Spike	P	0 - 20
2271791	Silver	1.73	Spike	P	0 - 20
2271791	Thallium	0.646	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4

Batch ID: P403028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271907	Aluminum	1.70	Spike	P	0 - 20
2271907	Antimony	1.85	Spike	P	0 - 20
2271907	Arsenic	2.09	Spike	P	0 - 20
2271907	Boron	1.10	Spike	P	0 - 20
2271907	Cadmium	3.34	Spike	P	0 - 20
2271907	Chromium	1.96	Spike	P	0 - 20
2271907	Copper	2.41	Spike	P	0 - 20
2271907	Lead	1.68	Spike	P	0 - 20
2271907	Nickel	0.996	Spike	P	0 - 20
2271907	Selenium	1.74	Spike	P	0 - 20
2271907	Silver	0.0537	Spike	P	0 - 20
2271907	Thallium	2.83	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P403238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271671	Chloride	0.720	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P403135

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271811	Ammonia-N	0.686	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P403139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271794	Ammonia-N	0.339	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P403265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271748	Kjeldahl Nitrogen	0.873	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P403308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271764	Kjeldahl Nitrogen	2.76	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P403010

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271765	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P403073

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271675	NO2NO3-N	0.606	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P403084

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272046	Total-P	4.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402970

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271821	O-Phosphate-P	2.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P402972

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271813	O-Phosphate-P	1.80	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P402974

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271284	Acesulfame K	2.14	Spike	P	0 - 30
2271284	AMPA	0.789	Spike	P	0 - 30
2271284	Endothall	2.32	Spike	P	0 - 30
2271284	Glufosinate	0.745	Spike	P	0 - 30
2271284	Glyphosate	2.50	Spike	P	0 - 30
2271284	Sucralose	0.483	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P403027

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271466	2,4-D	7.65	Spike	P	0 - 30
2271466	2,4,5-T	9.54	Spike	P	0 - 30
2271466	Acetaminophen	3.38	Spike	P	0 - 30
2271466	Acetamiprid	8.00	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P403027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271466	Afidopyropen	10.3	Spike	P	0 - 30
2271466	Bentazon	11.5	Spike	P	0 - 30
2271466	Benzovindiflupyr	3.81	Spike	P	0 - 30
2271466	Carbamazepine	3.45	Spike	P	0 - 30
2271466	Clothianidin	2.74	Spike	P	0 - 30
2271466	Dinotefuran	7.69	Spike	P	0 - 30
2271466	Diuron	2.22	Spike	P	0 - 30
2271466	Fenuron	3.73	Spike	P	0 - 30
2271466	Fluridone	5.58	Spike	P	0 - 30
2271466	Hydrocodone	11.5	Spike	P	0 - 30
2271466	Ibuprofen	6.74	Spike	P	0 - 30
2271466	Imazapyr	11.0	Spike	P	0 - 30
2271466	Imidacloprid	1.18	Spike	P	0 - 30
2271466	Linuron	25.3	Spike	P	0 - 30
2271466	Mandestrobin	3.39	Spike	P	0 - 30
2271466	MCPP	6.59	Spike	P	0 - 30
2271466	Naproxen	7.15	Spike	P	0 - 30
2271466	Primidone	44.0	Spike	F	0 - 30
2271466	Pyraclostrobin	4.52	Spike	P	0 - 30
2271466	Thiamethoxam	9.47	Spike	P	0 - 30
2271466	Tolfenpyrad	0.0501	Spike	P	0 - 30
2271466	Triclopyr	8.83	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P402989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271671	Color (true)	0.522	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P403060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271893	Total Alkalinity	1.36	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P403061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271808	Total Alkalinity	0.0475	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P403400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271747	TDS	6.21	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P403064

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271893	Fluoride	0.457	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P403065

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271785	Fluoride	0.455	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P403118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2272068	Organic Carbon	0.830	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P403373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2271437	Organic Carbon	0.165	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2271832

Field Sample ID: G3SW0064

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	102	P	30 - 160
EPA 8321B	Acetaminophen-d4	60.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	83.9	P	30 - 160
EPA 8321B	Diuron-d6	89.9	P	30 - 160
EPA 8321B	Endothall-d6	119	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	94.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	31.3	P	30 - 160
EPA 8321B	Primidone-d5	33.6	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160

Lab Sample ID: 2271857

Field Sample ID: G3SW0108

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	101	P	30 - 160
EPA 8321B	Acetaminophen-d4	85.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.9	P	30 - 160
EPA 8321B	Diuron-d6	84.5	P	30 - 160
EPA 8321B	Endothall-d6	108	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	74.2	P	30 - 160
EPA 8321B	Ibuprofen-d3	56.4	P	30 - 160
EPA 8321B	Primidone-d5	54.4	P	30 - 160
EPA 8321B	Sucralose-d6	81.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A107463

Included Lab Sample IDs: 2271807, 2271812, 2271813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107470

Included Lab Sample IDs: 2271805, 2271808, 2271809

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

Reference Method: SM 2120 B-2011

Run ID: A107472

Included Lab Sample IDs: 2271805

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107475

Included Lab Sample IDs: 2271810, 2271811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107502

Included Lab Sample IDs: 2271805, 2271808, 2271809

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

Reference Method: SM 4500 F-C-2011

Run ID: A107502

Included Lab Sample IDs: 2271805, 2271808, 2271809

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	103	P/P	90 - 110
Fluoride	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107506

Included Lab Sample IDs: 2271806

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 8321B

Run ID: A107519

Included Lab Sample IDs: 2271832, 2271857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	78.1		P	60 - 160
Glufosinate	99.7		P	60 - 160
Glyphosate	101		P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107520

Included Lab Sample IDs: 2271846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	103	104	P/P	90 - 110
Arsenic	97.1	98.5	P/P	90 - 110
Cadmium	99.9	101	P/P	90 - 110
Chromium	102	101	P/P	90 - 110
Copper	102	103	P/P	90 - 110
Lead	97.2	96.5	P/P	90 - 110
Nickel	103	104	P/P	90 - 110
Selenium	99.6	101	P/P	90 - 110
Silver	95.8	95.8	P/P	90 - 110
Thallium	101	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107528

Included Lab Sample IDs: 2271810

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

Reference Method: SM 5310 B-2011

Run ID: A107529

Included Lab Sample IDs: 2271810, 2271811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	96.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A107530

Included Lab Sample IDs: 2271832, 2271857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	74.6	P/P	60 - 160
Acesulfame K	65.2	101	P/P	60 - 160
Endothall	73.4	86.1	P/P	60 - 160
Endothall	82.6	105	P/P	60 - 160
Sucralose	90.6	90.9	P/P	60 - 160
Sucralose	97.4	101	P/P	60 - 160

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107540

Included Lab Sample IDs: 2271846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107540

Included Lab Sample IDs: 2271846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.8	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107544

Included Lab Sample IDs: 2271806, 2271810, 2271811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.4	99.2	P/P	90 - 110
Ammonia-N	99.0	98.3	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107548

Included Lab Sample IDs: 2271846

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	97.1	95.4	P/P	90 - 110
Manganese	100	99.1	P/P	90 - 110
Zinc	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107552

Included Lab Sample IDs: 2271811

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A107581

Included Lab Sample IDs: 2271845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	104	P/P	90 - 110
Antimony	102	102	P/P	90 - 110
Arsenic	98.0	99.6	P/P	90 - 110
Boron	102	107	P/P	90 - 110
Cadmium	102	103	P/P	90 - 110
Chromium	97.4	99.9	P/P	90 - 110
Copper	96.4	98.5	P/P	90 - 110
Lead	99.4	100	P/P	90 - 110
Nickel	96.4	98.4	P/P	90 - 110
Selenium	97.8	100	P/P	90 - 110
Silver	98.5	99.3	P/P	90 - 110
Thallium	105	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107592

Included Lab Sample IDs: 2271805

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A107604

Included Lab Sample IDs: 2271845

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	95.4	94.7	P/P	90 - 110
Calcium	95.9	95.9	P/P	90 - 110
Iron	95.6	95.5	P/P	90 - 110
Magnesium	95.9	95.7	P/P	90 - 110
Potassium	97.4	95.7	P/P	90 - 110
Sodium	97.5	96.6	P/P	90 - 110
Zinc	98.4	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107619

Included Lab Sample IDs: 2271806

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107640

Included Lab Sample IDs: 2271810, 2271811

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.9	95.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A107644

Included Lab Sample IDs: 2271806

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A107667

Included Lab Sample IDs: 2271832

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	104	112	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A107670

Included Lab Sample IDs: 2271832, 2271857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	115	116	P/P	50 - 150
2,4,5-T	114	93.3	P/P	50 - 150
Acetaminophen	106	110	P/P	60 - 160
Acetamiprid	111	111	P/P	50 - 150
Afidopyropen	106	109	P/P	50 - 150
Bentazon	110	104	P/P	50 - 160
Benzovindiflupyr	108	110	P/P	50 - 150
Carbamazepine	115	116	P/P	60 - 150
Clothianidin	109	118	P/P	60 - 150
Dinotefuran	103	101	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A107670

Included Lab Sample IDs: 2271832, 2271857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	104	105	P/P	60 - 160
Fenuron	101	104	P/P	60 - 150
Fluridone	105	110	P/P	60 - 160
Hydrocodone	101	100	P/P	60 - 150
Ibuprofen	80.0	68.9	P/P	50 - 160
Imazapyr	93.2	89.9	P/P	50 - 150
Imidacloprid	113	110	P/P	60 - 150
Linuron	97.0	99.3	P/P	60 - 150
Mandestrobin	111	105	P/P	50 - 150
MCPP	97.2	110	P/P	50 - 150
Naproxen	93.6	120	P/P	50 - 160
Primidone	109	117	P/P	60 - 150
Pyraclostrobin	112	112	P/P	60 - 150
Thiamethoxam	101	111	P/P	50 - 150
Tolfenpyrad	112	107	P/P	60 - 150
Triclopyr	115	112	P/P	50 - 150

* 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								2.23	
	Turbidity								7.74	
EPA 200.7 Rev. 4.4	Barium	102			100	98.7	99.2			0.516
	Calcium	89.9			98.6	97.2				0.684
	Iron	105			100	98.1				1.90
	Iron	106			107	106	105			0.379
	Magnesium	89.1			108	99.0				1.07
	Manganese	101			94.5	93.6				0.935
	Potassium	103			105	103	102			0.357
	Sodium	90.6			99.3	101				0.600
	Zinc	102			115	114				0.863
	Zinc	102			102	97.1	98.5			1.44
EPA 200.8 Rev. 5.4	Aluminum	103			111	108				2.98
	Aluminum	100			100	102	102			1.70
	Antimony	104			104	103				0.766
	Antimony	101			106	108	104			1.85
	Arsenic	97.5			110	108				1.44
	Arsenic	101			103	106	102			2.09
	Boron	99.9			105	107	107			1.10
	Cadmium	100			94.9	94.1				0.812
	Cadmium	99.7			103	107	104			3.34
	Chromium	102			104	103				0.930
	Chromium	98.2			103	106	101			1.96
	Copper	101			109	108				0.813
	Copper	99.9			98.4	101	99.4			2.41
	Lead	97.9			107	106				0.527
	Lead	100			104	105	105			1.68
	Nickel	101			112	110				1.26
	Nickel	101			100	102	101			0.996
	Selenium	97.6			104	101				3.04
	Selenium	100			101	103	100			1.74
	Silver	99.6			91.9	90.3				1.73
	Silver	105			104	105	105			0.0537
	Thallium	101			109	110				0.646
	Thallium	103			109	112	112			2.83
EPA 300.0 Rev. 2.1	Chloride	101			101	99.7			0.720	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4			102	103				0.686
	Ammonia-N	98.4			94.6	95.0				0.339
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101			106	105				0.873
	Kjeldahl Nitrogen	101			96.1	99.6				2.76
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5			97.8	97.8				0.0
	NO2NO3-N	99.0			99.5	98.5				0.606
EPA 365.1 Rev. 2.0	Total-P	103			107	100				4.62
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101			97.0	99.4				2.44
	O-Phosphate-P	98.4			100	102				1.80
EPA 8321B	2,4-D	92.8			105	96.8				7.65
	2,4,5-T	106			111	101				9.54
	Acesulfame K	78.6			56.7	57.9				2.14
	Acetaminophen	80.2			81.5	84.3				3.38
	Acetamiprid	96.1			91.7	84.6				8.00
	Afidopyropen	83.2			111	99.8				10.3
	AMPA	82.4			91.0	91.7				0.789
	Bentazon	119								11.5
	Benzovindiflupyr	94.7			92.0	95.7				3.81

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
EPA 8321B	Carbamazepine	85.8	88.7	92.1		3.45
	Clothianidin	98.4	68.7	70.6		2.74
	Dinotefuran	84.8				7.69
	Diuron	79.0	89.8	87.8		2.22
	Endothall	68.1	101	103		2.32
	Fenuron	94.5	99.3	95.6		3.73
	Fluridone	100	94.8	100		5.58
	Glufosinate	105	107	106		0.745
	Glyphosate	107	108	110		2.50
	Hydrocodone	77.7	98.2	87.5		11.5
	Ibuprofen	54.6	70.5	65.9		6.74
	Imazapyr	85.0				11.0
	Imidacloprid	97.3	92.3	91.1		1.18
	Linuron	83.9	99.3	77.0		25.3
	Mandestrobin	95.1	104	101		3.39
	MCPP	91.7	118	110		6.59
	Naproxen	98.6	94.3	87.8		7.15
	Primidone	84.9	32.3	50.6		44.0
	Pyraclostrobin	87.5	91.3	87.3		4.52
	Sucralose	90.2	93.6	94.0		0.483
	Thiamethoxam	92.7	99.5	90.5		9.47
	Tolfenpyrad	51.5	52.1	52.1		0.0501
	Triclopyr	97.3	106	96.9		8.83
SM 2120 B-2011	Color (true)	100				0.522
SM 2320 B-2011	Total Alkalinity	102				1.36
	Total Alkalinity	103				0.0475
SM 2540 C-2011	TDS					6.21
SM 4500 F-C-2011	Fluoride	99.9	100	99.4		0.457
	Fluoride	101	99.6	102		0.455
SM 5310 B-2011	Organic Carbon	95.6	94.8	96.0		0.830
	Organic Carbon	95.8	103			0.165

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2271805, 2271808, 2271809
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2271845, 2271846
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2271845, 2271846
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2271805
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2271806, 2271810, 2271811
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2271806, 2271810, 2271811
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2271806, 2271810, 2271811
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2271810, 2271811
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2271807, 2271812, 2271813
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2271832, 2271857
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2271805
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2271805, 2271808, 2271809
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2271845
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2271805
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2271805, 2271808, 2271809

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2271805, 2271808, 2271809
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2271806, 2271810, 2271811

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	08/25/2021			08/25/2021 15:37	Sarah A Nixon	2271805, 2271808, 2271809
EPA 200.7 Rev. 4.4	08/25/2021	08/26/2021 14:45	Elliott D. Healy	08/30/2021 20:29	Josef B Mick	2271846
	08/25/2021	08/26/2021 15:05	Elliott D. Healy	09/01/2021 22:04	Josef B Mick	2271845
EPA 200.8 Rev. 5.4	08/25/2021	08/26/2021 14:45	Elliott D. Healy	08/27/2021 14:59	Alexander Thompson	2271846
	08/25/2021	08/26/2021 14:45	Elliott D. Healy	08/27/2021 17:04	Alexander Thompson	2271846
	08/25/2021	08/26/2021 14:45	Elliott D. Healy	08/30/2021 12:21	Alexander Thompson	2271846
	08/25/2021	08/26/2021 15:05	Elliott D. Healy	08/31/2021 18:10	Alexander Thompson	2271845
EPA 300.0 Rev. 2.1	08/25/2021			08/31/2021 16:57	Lipi Saha	2271805
EPA 350.1 Rev. 2.0	08/25/2021			08/30/2021 11:27	Ping Hua	2271811
	08/25/2021			08/30/2021 11:32	Ping Hua	2271810
	08/25/2021			08/30/2021 13:30	Ping Hua	2271806
EPA 351.2 Rev. 2.0	08/25/2021	09/01/2021 12:17	Benjamin T. Nordmann	09/02/2021 11:42	Alexandra J Mattheus	2271806
	08/25/2021	09/02/2021 16:07	Benjamin T. Nordmann	09/03/2021 10:08	Alexandra J Mattheus	2271810
	08/25/2021	09/02/2021 16:07	Benjamin T. Nordmann	09/03/2021 10:10	Alexandra J Mattheus	2271811
EPA 353.2 Rev. 2.0	08/25/2021			08/26/2021 10:01	Beverly Y. Sanders	2271810
	08/25/2021			08/26/2021 10:02	Beverly Y. Sanders	2271811
	08/25/2021			08/27/2021 11:50	Beverly Y. Sanders	2271806
EPA 365.1 Rev. 2.0	08/25/2021	08/27/2021 14:47	Simonne.V. Calhoun	08/30/2021 11:34	Shengyu Ding	2271810
	08/25/2021	08/27/2021 14:47	Simonne.V. Calhoun	08/30/2021 15:35	Lipi Saha	2271811
EPA 365.1 Rev. 2.0 dissolved	08/25/2021			08/25/2021 15:24	James L Waggeberby	2271813
	08/25/2021			08/25/2021 15:29	James L Waggeberby	2271812
	08/25/2021			08/25/2021 15:34	James L Waggeberby	2271807
EPA 8321B	08/25/2021	08/27/2021 09:00	Juyoung Kim	08/27/2021 12:33	Juyoung Kim	2271832
	08/25/2021	08/27/2021 09:00	Juyoung Kim	08/27/2021 14:42	Juyoung Kim	2271857
	08/25/2021	08/27/2021 09:00	Juyoung Kim	08/28/2021 02:11	Juyoung Kim	2271857
	08/25/2021	08/27/2021 09:00	Juyoung Kim	08/30/2021 09:34	Juyoung Kim	2271832
	08/25/2021	08/27/2021 14:00	Hoor Shaik	08/28/2021 04:40	Juyoung Kim	2271832
	08/25/2021	08/27/2021 14:00	Hoor Shaik	08/28/2021 05:15	Juyoung Kim	2271857
	08/25/2021	08/27/2021 14:00	Hoor Shaik	09/07/2021 18:12	Juyoung Kim	2271832
SM 2120 B-2011	08/25/2021			08/25/2021 17:01	Sarah A Nixon	2271805
SM 2320 B-2011	08/25/2021			08/26/2021 23:12	Dale L. Simmons	2271805
	08/25/2021			08/27/2021 02:56	Dale L. Simmons	2271808
	08/25/2021			08/27/2021 03:40	Dale L. Simmons	2271809
SM 2340B	08/25/2021			09/01/2021 22:04	Josef B Mick	2271845
SM 2540 C-2011	08/25/2021			08/30/2021 15:46	Yijie Li	2271805
SM 2540 D-2011	08/25/2021			08/30/2021 14:36	Yijie Li	2271805, 2271808, 2271809
SM 4500 F-C-2011	08/25/2021			08/26/2021 23:12	Dale L. Simmons	2271805
	08/25/2021			08/27/2021 01:40	Dale L. Simmons	2271808
	08/25/2021			08/27/2021 01:45	Dale L. Simmons	2271809
SM 5310 B-2011	08/25/2021			08/28/2021 15:24	Madeline Gruver	2271810

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	08/25/2021			08/28/2021 15:42	Madeline Gruver	2271811
	08/25/2021			09/03/2021 09:44	Touraj Touran	2271806