

Chemical Analysis Report

SO-DIST-2020-12-04-01

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

Event Description: **2020 SMP : Bonnet Creek, Grassy Creek**

Request ID: **RQ-2020-12-07-68**

Customer: **SO-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Nicole Reistad

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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 22-DEC-2020 12:50



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: Bonnet Creek @ Sr 64

Collection Date/Time: 12/03/2020 10:15

Field ID: G4SD0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211149	EPA 180.1 Rev. 2.0	Turbidity	2.3	A	NTU	P390800	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P390877	
		Sulfate	11		mg SO4/L	P390879	
		Color (true)	250		PCU	P390751	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P390810	
	SM 2540 C-2011	TDS	135		mg/L	P391168	
	SM 2540 D-2011	TSS	4	I	mg/L	P391148	
	SM 4500 F-C-2011	Fluoride	0.064	I	mg F/L	P390815	
2211151	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P391078	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P391045	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.31		mg N/L	P390823	
	EPA 365.1 Rev. 2.0	Total-P	0.80		mg P/L	P390865	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P390897	
2211153	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.82		mg P/L	P390719	
2211165	EPA 200.7 Rev. 4.4	Barium	7.8		ug/L	P390843	
		Calcium	9.00		mg/L	P390843	
		Iron	210		ug/L	P390843	
		Magnesium	5.13		mg/L	P390843	
		Potassium	10.0		mg/L	P390843	
		Sodium	8.4		mg/L	P390843	
		Zinc	5.0	U	ug/L	P390843	
	EPA 200.8 Rev. 5.4	Aluminum	162		ug/L	P390843	
		Antimony	0.050	U	ug/L	P390843	
		Arsenic	0.42		ug/L	P390843	
		Beryllium	0.013	I	ug/L	P390843	
		Boron**	24.0		ug/L	P390843	
		Cadmium	0.020	U	ug/L	P390843	
		Chromium	0.40	I	ug/L	P390843	
		Copper	1.39		ug/L	P390843	
		Lead	0.20	U	ug/L	P390843	
		Nickel	0.50	U	ug/L	P390843	
		Selenium	0.20	U	ug/L	P390843	
		Silver	0.010	U	ug/L	P390843	
		Thallium	0.10	U	ug/L	P390843	
	SM 2340B	Hardness	43.6		mg/L	P390843	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Cow Slough @ Farabee Rd

Collection Date/Time: 12/03/2020 13:30

Field ID: G3SD0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211150	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P390800	
	EPA 300.0 Rev. 2.1	Chloride	37		mg Cl/L	P390877	
		Sulfate	27		mg SO4/L	P390879	
		Color (true)	300		PCU	P390751	
	SM 2320 B-2011	Total Alkalinity	44		mg CaCO3/L	P390810	
	SM 2540 C-2011	TDS	228		mg/L	P391168	
	SM 2540 D-2011	TSS	5	I	mg/L	P391148	
	SM 4500 F-C-2011	Fluoride	0.13		mg F/L	P390970	
2211152	EPA 350.1 Rev. 2.0	Ammonia-N	0.086		mg N/L	P391080	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P391045	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P390823	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P390867	
	SM 5310 B-2011	Organic Carbon	29		mg C/L	P390897	
2211154	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P390719	
2211166	EPA 200.7 Rev. 4.4	Barium	21.5		ug/L	P390843	
		Calcium	24.8		mg/L	P390843	
		Iron	1.0E+03		ug/L	P390843	
		Magnesium	7.31		mg/L	P390843	
		Potassium	5.0		mg/L	P390843	
		Sodium	18.7		mg/L	P390843	
		Zinc	5.0	U	ug/L	P390843	
	EPA 200.8 Rev. 5.4	Aluminum	219		ug/L	P390843	
		Antimony	0.080	I	ug/L	P390843	
		Arsenic	0.70		ug/L	P390843	
		Beryllium	0.024	I	ug/L	P390843	
		Boron**	36.2		ug/L	P390843	
		Cadmium	0.020	U	ug/L	P390843	
		Chromium	0.89	I	ug/L	P390843	
		Copper	1.45		ug/L	P390843	
		Lead	0.21	I	ug/L	P390843	
		Nickel	0.58	I	ug/L	P390843	
		Selenium	0.20	U	ug/L	P390843	
		Silver	0.010	U	ug/L	P390843	
		Thallium	0.10	U	ug/L	P390843	
	SM 2340B	Hardness	92.1		mg/L	P390843	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for potassium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: Grassy Creek

Collection Date/Time: 12/03/2020 11:45

Field ID: G4SD0184

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211155	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P390800	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P390877	
		Sulfate	20		mg SO4/L	P390879	
	SM 2120 B-2011	Color (true)	32	A	PCU	P390751	
	SM 2320 B-2011	Total Alkalinity	11		mg CaCO3/L	P390810	
	SM 2540 C-2011	TDS	96		mg/L	P391168	
	SM 2540 D-2011	TSS	4	I	mg/L	P391148	
2211156	SM 4500 F-C-2011	Fluoride	0.042	I	mg F/L	P390970	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P391080	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P391045	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P390823	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P390867	
2211157	SM 5310 B-2011	Organic Carbon	8.1		mg C/L	P390897	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P390719	
2211164	EPA 8321B	2,4-D	0.0020	U	ug/L	P390943	
		Acesulfame K**	0.14	I	ug/L	P390748	MS
		AMPA**	0.31	I	ug/L	P390748	
		Sucralose**	0.70		ug/L	P390748	
		Acetaminophen**	0.0080	U	ug/L	P390943	
		Acetamiprid**	0.0020	U	ug/L	P390943	
		Endothall**	0.25	U	ug/L	P390748	
		Glufosinate**	0.10	U	ug/L	P390748	
		Glyphosate**	0.10	U	ug/L	P390748	
		Afidopyropen**	0.0020	U	ug/L	P390943	
		Bentazon	0.018		ug/L	P390943	
		Benzovindiflupyr**	0.0020	U	ug/L	P390943	
		Carbamazepine**	8.0E-04	U	ug/L	P390943	
		Clothianidin**	0.0037	I	ug/L	P390943	
		Dinotefuran**	0.0020	U	ug/L	P390943	
		Diuron	0.0033	I	ug/L	P390943	
		Fenuron	0.016	U	ug/L	P390943	
		Fluridone**	0.0041		ug/L	P390943	
		Imazapyr**	0.0055	I	ug/L	P390943	
		Hydrocodone**	0.0020	U	ug/L	P390943	
		Ibuprofen**	0.020	U	ug/L	P390943	
		Imidacloprid	0.036		ug/L	P390943	
		Linuron	0.0040	U	ug/L	P390943	
		Mandestrobin**	0.0020	U	ug/L	P390943	
		MCPP	0.0020	U	ug/L	P390943	
		Naproxen**	0.0080	U	ug/L	P390943	
		Primidone**	0.0045	I	ug/L	P390943	
		Pyraclostrobin**	0.0020	U	ug/L	P390943	
		Thiamethoxam**	0.0065	I	ug/L	P390943	

Field ID: G4SD0184

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2211164	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P390943	
		Triclopyr**	0.0040	U	ug/L	P390943	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390800

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P390843

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: P390843

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
Boron	2.0	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 300.0 Rev. 2.1
Batch ID: P390877

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390879

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391078

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391080

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391045

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390865

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390867

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390719

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

Reference Method: EPA 8321B
Batch ID: P390748

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: P390943

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.025	I	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P390943

Component	Result	Code	Units
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
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: P390751

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P390810

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

Reference Method: SM 2540 C-2011

Batch ID: P391168

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011

Batch ID: P391148

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011

Batch ID: P390815

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P390970

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P390897

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: P390843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	108		P	85 - 115
Calcium	103		P	85 - 115
Iron	107		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	98.7		P	85 - 115
Sodium	105		P	85 - 115
Zinc	110		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P390843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.9		P	85 - 115
Antimony	104		P	85 - 115
Arsenic	100		P	85 - 115
Beryllium	104		P	85 - 115
Boron	97.5		P	85 - 115
Cadmium	98.1		P	85 - 115
Chromium	103		P	85 - 115
Copper	98.8		P	85 - 115
Lead	103		P	85 - 115
Nickel	98.4		P	85 - 115
Selenium	99.3		P	85 - 115
Silver	107		P	85 - 115
Thallium	102		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390877

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390879

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391078

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391045

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390823

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390865

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390867

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: P390719

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

Reference Method: EPA 8321B
Batch ID: P390748

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	114		P	40 - 150
AMPA	75.6		P	40 - 150
Endothall	78.0		P	40 - 150
Glufosinate	109		P	40 - 150
Glyphosate	96.7		P	40 - 140
Sucralose	99.1		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P390943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	67.5		P	30 - 160
Acetaminophen	53.8		P	30 - 160
Acetamiprid	79.2		P	30 - 160
Afidopyropen	62.0		P	30 - 160
Bentazon	81.9		P	30 - 160
Benzovindiflupyr	62.8		P	30 - 160
Carbamazepine	56.9		P	30 - 160
Clothianidin	75.5		P	30 - 160
Dinotefuran	66.8		P	30 - 160
Diuron	58.5		P	30 - 160
Fenuron	78.0		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P390943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluridone	64.4		P	30 - 160
Hydrocodone	95.8		P	30 - 160
Ibuprofen	54.5		P	30 - 160
Imazapyr	49.2		P	30 - 160
Imidacloprid	97.5		P	30 - 160
Linuron	59.1		P	30 - 160
Mandestrobin	68.3		P	30 - 160
MCPP	78.7		P	30 - 160
Naproxen	52.5		P	30 - 160
Primidone	76.6		P	30 - 160
Pyraclostrobin	53.2		P	30 - 160
Thiamethoxam	98.5		P	30 - 160
Tolfenpyrad	37.1		P	30 - 160
Triclopyr	46.5		P	30 - 160

Reference Method: SM 2120 B-2011
Batch ID: P390751

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P390810

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

Reference Method: SM 4500 F-C-2011
Batch ID: P390815

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	90 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P390970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P390897

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P390843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211165	Barium	104		P	80 - 120
2211165	Calcium	103		P	80 - 120
2211165	Iron	105		P	80 - 120
2211165	Magnesium	99.0		P	80 - 120
2211165	Sodium	99.8		P	80 - 120
2211165	Zinc	108		P	80 - 120
2211329	Barium	102	90.5	P/P	80 - 120
2211329	Calcium	84.2		P	80 - 120
2211329	Iron	103	88.5	P/P	80 - 120
2211329	Magnesium	98.9	100	P/P	80 - 120
2211329	Potassium	96.4	82.5	P/P	80 - 120
2211329	Sodium	103	82.3	P/P	80 - 120
2211329	Zinc	102	86.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P390843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211165	Aluminum	103		P	80 - 120
2211165	Antimony	104		P	80 - 120
2211165	Arsenic	98.2		P	80 - 120
2211165	Beryllium	104		P	80 - 120
2211165	Boron	101		P	80 - 120
2211165	Cadmium	97.2		P	80 - 120
2211165	Chromium	102		P	80 - 120
2211165	Copper	96.0		P	80 - 120
2211165	Lead	104		P	80 - 120
2211165	Nickel	95.7		P	80 - 120
2211165	Selenium	96.9		P	80 - 120
2211165	Silver	106		P	80 - 120
2211165	Thallium	106		P	80 - 120
2211329	Aluminum	102	100	P/P	80 - 120
2211329	Antimony	105	105	P/P	80 - 120
2211329	Arsenic	101	98.9	P/P	80 - 120
2211329	Beryllium	102	103	P/P	80 - 120
2211329	Boron	94.7	95.2	P/P	80 - 120
2211329	Cadmium	98.0	98.1	P/P	80 - 120
2211329	Chromium	101	102	P/P	80 - 120
2211329	Copper	95.7	94.6	P/P	80 - 120
2211329	Lead	102	103	P/P	80 - 120
2211329	Nickel	96.9	96.2	P/P	80 - 120
2211329	Selenium	98.4	96.7	P/P	80 - 120
2211329	Silver	106	108	P/P	80 - 120
2211329	Thallium	102	105	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211149	Chloride	101	97.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390879

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211149	Sulfate	103	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211151	Ammonia-N	94.2	94.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391080

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211262	Ammonia-N	94.4	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210834	NO2NO3-N	96.0	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210788	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210267	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211157	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P390748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210272	Acesulfame K	137	160	P/F	40 - 150
2210272	AMPA	89.8	91.0	P/P	40 - 150
2210272	Endothall	109	112	P/P	40 - 150
2210272	Glufosinate	100	105	P/P	40 - 150
2210272	Glyphosate	87.1	88.6	P/P	40 - 140
2210272	Sucralose	96.3	102	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P390943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210999	2,4-D	99.7	98.6	P/P	30 - 160
2210999	Acetaminophen	60.1	52.3	P/P	30 - 160
2210999	Acetamiprid	95.7	88.2	P/P	30 - 160
2210999	Afidopyropen	77.7	71.6	P/P	30 - 160
2210999	Bentazon	128	112	P/P	30 - 160
2210999	Benzovindiflupyr	74.3	72.9	P/P	30 - 160
2210999	Carbamazepine	55.1	52.1	P/P	30 - 160
2210999	Clothianidin	71.5	74.3	P/P	30 - 160
2210999	Dinotefuran	96.4	83.2	P/P	30 - 160
2210999	Diuron	56.2	52.9	P/P	30 - 160
2210999	Fenuron	67.2	65.9	P/P	30 - 160
2210999	Fluridone	71.2	66.6	P/P	30 - 160
2210999	Hydrocodone	111	127	P/P	30 - 160
2210999	Ibuprofen	64.8	54.9	P/P	30 - 160
2210999	Imazapyr	74.1	65.8	P/P	30 - 160
2210999	Imidacloprid	128	109	P/P	30 - 160
2210999	Linuron	65.3	62.1	P/P	30 - 160
2210999	Mandestrobin	72.7	72.2	P/P	30 - 160
2210999	MCP	98.5	98.4	P/P	30 - 160
2210999	Naproxen	78.0	65.2	P/P	30 - 160
2210999	Primidone	83.0	81.4	P/P	30 - 160
2210999	Pyraclostrobin	55.0	59.1	P/P	30 - 160
2210999	Thiamethoxam	118	116	P/P	30 - 160
2210999	Tolfenpyrad	42.1	38.7	P/P	30 - 160
2210999	Triclopyr	79.1	75.8	P/P	30 - 160

Reference Method: SM 4500 F-C-2011
Batch ID: P390815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210831	Fluoride	101	103	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P390970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2211416	Fluoride	97.7	99.0	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P390897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2210789	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P390800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211149	Turbidity	2.56	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P390843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211329	Barium	12.2	Spike	P	0 - 20
2211329	Calcium	16.5	Spike	P	0 - 20
2211329	Iron	15.6	Spike	P	0 - 20
2211329	Magnesium	0.736	Spike	P	0 - 20
2211329	Potassium	13.8	Spike	P	0 - 20
2211329	Sodium	15.0	Spike	P	0 - 20
2211329	Zinc	15.9	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P390843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211329	Aluminum	1.89	Spike	P	0 - 20
2211329	Antimony	0.316	Spike	P	0 - 20
2211329	Arsenic	1.77	Spike	P	0 - 20
2211329	Beryllium	0.349	Spike	P	0 - 20
2211329	Boron	0.500	Spike	P	0 - 20
2211329	Cadmium	0.159	Spike	P	0 - 20
2211329	Chromium	0.418	Spike	P	0 - 20
2211329	Copper	1.15	Spike	P	0 - 20
2211329	Lead	1.12	Spike	P	0 - 20
2211329	Nickel	0.749	Spike	P	0 - 20
2211329	Selenium	1.74	Spike	P	0 - 20
2211329	Silver	1.31	Spike	P	0 - 20
2211329	Thallium	2.41	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211149	Chloride	2.02	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P390879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211149	Sulfate	1.67	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211151	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211262	Ammonia-N	0.168	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210556	Kjeldahl Nitrogen	8.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P390823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210834	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210788	Total-P	1.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P390867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210267	Total-P	0.599	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P390719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211157	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P390748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210272	Acesulfame K	15.9	Spike	P	0 - 30
2210272	AMPA	1.26	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
 Batch ID: P390748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210272	Endothall	3.35	Spike	P	0 - 30
2210272	Glufosinate	4.12	Spike	P	0 - 30
2210272	Glyphosate	1.77	Spike	P	0 - 30
2210272	Sucralose	5.49	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P390943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210999	2,4-D	1.09	Spike	P	0 - 30
2210999	Acetaminophen	14.0	Spike	P	0 - 30
2210999	Acetamiprid	8.16	Spike	P	0 - 30
2210999	Afidopyropen	8.15	Spike	P	0 - 30
2210999	Bentazon	12.9	Spike	P	0 - 30
2210999	Benzovindiflupyr	1.99	Spike	P	0 - 30
2210999	Carbamazepine	5.10	Spike	P	0 - 30
2210999	Clothianidin	3.83	Spike	P	0 - 30
2210999	Dinotefuran	14.8	Spike	P	0 - 30
2210999	Diuron	6.10	Spike	P	0 - 30
2210999	Fenuron	2.04	Spike	P	0 - 30
2210999	Fluridone	6.67	Spike	P	0 - 30
2210999	Hydrocodone	13.9	Spike	P	0 - 30
2210999	Ibuprofen	16.5	Spike	P	0 - 30
2210999	Imazapyr	11.0	Spike	P	0 - 30
2210999	Imidacloprid	15.2	Spike	P	0 - 30
2210999	Linuron	5.14	Spike	P	0 - 30
2210999	Mandestrobin	0.688	Spike	P	0 - 30
2210999	MCP	0.150	Spike	P	0 - 30
2210999	Naproxen	17.8	Spike	P	0 - 30
2210999	Primidone	1.91	Spike	P	0 - 30
2210999	Pyraclostrobin	7.13	Spike	P	0 - 30
2210999	Thiamethoxam	1.20	Spike	P	0 - 30
2210999	Tolfenpyrad	8.30	Spike	P	0 - 30
2210999	Triclopyr	4.27	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
 Batch ID: P390751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211155	Color (true)	1.01	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P390810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210831	Total Alkalinity	2.14	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P391168

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210749	TDS	3.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P390815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210831	Fluoride	0.979	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P390970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2211416	Fluoride	0.982	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P390897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2210789	Organic Carbon	0.311	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2211164
Field Sample ID: G4SD0184

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	90.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	39.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	46.3	P	30 - 160
EPA 8321B	Diuron-d6	51.4	P	30 - 160
EPA 8321B	Endothall-d6	101	P	40 - 160
EPA 8321B	Endothall-d6	101	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	77.4	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	77.4	P	40 - 160
EPA 8321B	Ibuprofen-d3	49.9	P	30 - 160
EPA 8321B	Primidone-d5	87.3	P	30 - 160
EPA 8321B	Sucralose-d6	87.4	P	30 - 160
EPA 8321B	Sucralose-d6	87.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102425

Included Lab Sample IDs: 2211153, 2211154, 2211157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	99.2	P/P	90 - 110
O-Phosphate-P	99.8	99.1	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A102440

Included Lab Sample IDs: 2211149, 2211150, 2211155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 115
Color (true)	103	105	P/P	90 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A102455

Included Lab Sample IDs: 2211149, 2211150, 2211155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	99.6	P/P	90 - 110
Sulfate	99.3	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102457

Included Lab Sample IDs: 2211149, 2211150, 2211155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A102461

Included Lab Sample IDs: 2211149, 2211150, 2211155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	98.8	P/P	90 - 110
Total Alkalinity	96.8	103	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102461

Included Lab Sample IDs: 2211149

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102464

Included Lab Sample IDs: 2211151, 2211152, 2211156

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A102470

Included Lab Sample IDs: 2211164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	113	107	P/P	60 - 160
AMPA	90.6	76.9	P/P	60 - 160
Endothall	79.2	102	P/P	60 - 160
Glufosinate	101	105	P/P	60 - 160
Glyphosate	95.7	94.7	P/P	60 - 160

Reference Method: SM 5310 B-2011

Run ID: A102488

Included Lab Sample IDs: 2211151, 2211152, 2211156

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102504

Included Lab Sample IDs: 2211165, 2211166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	102	P/P	90 - 110
Barium	102	102	P/P	90 - 110
Iron	99.1	102	P/P	90 - 110
Iron	99.6	99.1	P/P	90 - 110
Potassium	93.5	93.5	P/P	90 - 110
Potassium	93.5	96.3	P/P	90 - 110
Sodium	98.5	98.6	P/P	90 - 110
Sodium	98.6	98.8	P/P	90 - 110
Zinc	105	104	P/P	90 - 110
Zinc	107	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102510

Included Lab Sample IDs: 2211164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	97.3	97.3	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102516

Included Lab Sample IDs: 2211151, 2211152

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A102517

Included Lab Sample IDs: 2211165, 2211166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	97.6	97.7	P/P	90 - 110
Magnesium	96.4	96.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A102518

Included Lab Sample IDs: 2211150, 2211155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102532

Included Lab Sample IDs: 2211164

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	52.8	67.3	P/P	50 - 150
Acetaminophen	82.7	78.2	P/P	60 - 160
Acetamiprid	113	87.6	P/P	50 - 150
Afidopyropen	94.2	73.3	P/P	50 - 150
Bentazon	83.3	69.2	P/P	50 - 160
Benzovindiflupyr	87.3	75.8	P/P	50 - 160
Carbamazepine	101	93.3	P/P	60 - 150
Clothianidin	105	90.1	P/P	60 - 150
Dinotefuran	92.0	92.6	P/P	50 - 150
Diuron	76.1	82.9	P/P	60 - 160
Fenuron	61.5	85.6	P/P	60 - 150
Fluridone	85.2	77.3	P/P	60 - 160
Hydrocodone	85.3	96.8	P/P	60 - 150
Ibuprofen	83.4	82.0	P/P	50 - 160
Imazapyr	83.1	84.6	P/P	50 - 160
Imidacloprid	102	60.6	P/P	60 - 150
Linuron	94.9	82.8	P/P	60 - 150
Mandestrobin	92.2	89.6	P/P	50 - 150
MCPP	76.4	79.1	P/P	50 - 150
Naproxen	95.0	148	P/P	50 - 160
Primidone	97.8	94.9	P/P	60 - 150
Pyraclostrobin	84.2	69.8	P/P	60 - 150
Thiamethoxam	119	110	P/P	50 - 150
Tolfenpyrad	92.0	79.5	P/P	60 - 150
Triclopyr	74.0	81.0	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102553

Included Lab Sample IDs: 2211151, 2211152, 2211156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.7	97.7	P/P	90 - 110
Ammonia-N	96.9	96.5	P/P	90 - 110
Ammonia-N	97.0	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102570

Included Lab Sample IDs: 2211156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102573

Included Lab Sample IDs: 2211151, 2211152, 2211156

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102629

Included Lab Sample IDs: 2211165, 2211166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Antimony	100	99.1	P/P	90 - 110
Arsenic	97.0	96.2	P/P	90 - 110
Boron	100	102	P/P	90 - 110
Cadmium	96.4	95.9	P/P	90 - 110
Chromium	102	101	P/P	90 - 110
Copper	94.4	93.5	P/P	90 - 110
Lead	99.1	98.1	P/P	90 - 110
Nickel	94.0	93.4	P/P	90 - 110
Selenium	97.2	96.8	P/P	90 - 110
Silver	104	103	P/P	90 - 110
Thallium	101	99.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A102654

Included Lab Sample IDs: 2211165, 2211166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.0	101	P/P	90 - 110
Beryllium	99.2	99.1	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						2.56	
EPA 200.7 Rev. 4.4	Barium	108	104	102	90.5			12.2
	Calcium	103	103	84.2				16.5
	Iron	107	105	103	88.5			15.6
	Magnesium	102	98.9	100	99.0			0.736
	Potassium	98.7	96.4	82.5				13.8
	Sodium	105	99.8	103	82.3			15.0
	Zinc	110	108	102	86.8			15.9
EPA 200.8 Rev. 5.4	Aluminum	99.9	102	100	103			1.89
	Antimony	104	105	105	104			0.316
	Arsenic	100	101	98.9	98.2			1.77
	Beryllium	104	102	103	104			0.349
	Boron	97.5	94.7	95.2	101			0.500
	Cadmium	98.1	98.0	98.1	97.2			0.159
	Chromium	103	101	102	102			0.418
	Copper	98.8	95.7	94.6	96.0			1.15
	Lead	103	102	103	104			1.12
	Nickel	98.4	96.9	96.2	95.7			0.749
	Selenium	99.3	96.7	96.9	98.4			1.74
	Silver	107	106	108	106			1.31
	Thallium	102	102	105	106			2.41
EPA 300.0 Rev. 2.1	Chloride	99.8	101	97.9				2.02
	Sulfate	99.8	103	100				1.67
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	94.2	94.2				0.0
	Ammonia-N	96.2	94.4	94.6				0.168
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102						8.30
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	96.0	95.5				0.506
EPA 365.1 Rev. 2.0	Total-P	107	106	107				1.23
	Total-P	103	106	105				0.599
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	100	100				0.0
EPA 8321B	2,4-D	67.5	99.7	98.6				1.09
	Acesulfame K	114	137	160				15.9
	Acetaminophen	53.8	60.1	52.3				14.0
	Acetamiprid	79.2	95.7	88.2				8.16
	Afidopyropen	62.0	77.7	71.6				8.15
	AMPA	75.6	89.8	91.0				1.26
	Bentazon	81.9	128	112				12.9
	Benzovindiflupyr	62.8	74.3	72.9				1.99
	Carbamazepine	56.9	55.1	52.1				5.10
	Clothianidin	75.5	71.5	74.3				3.83
	Dinotefuran	66.8	96.4	83.2				14.8
	Diuron	58.5	56.2	52.9				6.10
	Endothall	78.0	109	112				3.35
	Fenuron	78.0	67.2	65.9				2.04
	Fluridone	64.4	71.2	66.6				6.67
	Glufosinate	109	100	105				4.12
	Glyphosate	96.7	87.1	88.6				1.77
	Hydrocodone	95.8	111	127				13.9
	Ibuprofen	54.5	64.8	54.9				16.5
	Imazapyr	49.2	74.1	65.8				11.0
	Imidacloprid	97.5	128	109				15.2
	Linuron	59.1	65.3	62.1				5.14
	Mandestrobin	68.3	72.7	72.2				0.688
	MCPP	78.7	98.5	98.4				0.150

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Naproxen	52.5	78.0	65.2		17.8
	Primidone	76.6	83.0	81.4		1.91
	Pyraclostrobin	53.2	55.0	59.1		7.13
	Sucralose	99.1	96.3	102		5.49
	Thiamethoxam	98.5	118	116		1.20
	Tolfenpyrad	37.1	42.1	38.7		8.30
	Triclopyr	46.5	79.1	75.8		4.27
SM 2120 B-2011	Color (true)	103			1.01	
SM 2320 B-2011	Total Alkalinity	101			2.14	
SM 2540 C-2011	TDS				3.45	
SM 4500 F-C-2011	Fluoride	98.2	101	103		0.979
	Fluoride	97.9	97.7	99.0		0.982
SM 5310 B-2011	Organic Carbon	102	101			0.311

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2211149, 2211150, 2211155
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2211165, 2211166
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2211165, 2211166
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2211149, 2211150, 2211155
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2211149, 2211150, 2211155
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2211151, 2211152, 2211156
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2211151, 2211152, 2211156
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2211151, 2211152, 2211156
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2211151, 2211152, 2211156
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2211153, 2211154, 2211157
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2211164
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2211164
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2211149, 2211150, 2211155
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2211149, 2211150, 2211155
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2211165, 2211166
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2211149, 2211150, 2211155
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2211149, 2211150, 2211155
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2211149, 2211150, 2211155
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2211151, 2211152, 2211156

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	12/04/2020			12/04/2020 16:23	Blanca Fach	2211149, 2211150, 2211155
EPA 200.7 Rev. 4.4	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/09/2020 14:36	Betina Topolski	2211165
	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/09/2020 15:25	Betina Topolski	2211166
	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/10/2020 11:13	Betina Topolski	2211165
	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/10/2020 11:24	Betina Topolski	2211166
EPA 200.8 Rev. 5.4	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/16/2020 10:09	Alexander Thompson	2211166
	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/16/2020 10:31	Alexander Thompson	2211165
	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/17/2020 13:43	Alexander Thompson	2211166
	12/04/2020	12/08/2020 15:15	Elliott D. Healy	12/17/2020 13:56	Alexander Thompson	2211165
EPA 300.0 Rev. 2.1	12/04/2020			12/08/2020 19:42	Lipi Saha	2211149
	12/04/2020			12/08/2020 20:18	Lipi Saha	2211150
	12/04/2020			12/08/2020 20:30	Lipi Saha	2211155
EPA 350.1 Rev. 2.0	12/04/2020			12/13/2020 13:26	Ping Hua	2211151
	12/04/2020			12/13/2020 14:27	Ping Hua	2211156
	12/04/2020			12/13/2020 14:45	Ping Hua	2211152
EPA 351.2 Rev. 2.0	12/04/2020	12/11/2020 13:20	Yen Ta	12/14/2020 14:15	Julia Storbeck	2211151
	12/04/2020	12/11/2020 13:20	Yen Ta	12/14/2020 14:17	Julia Storbeck	2211152
	12/04/2020	12/11/2020 13:20	Yen Ta	12/14/2020 14:19	Julia Storbeck	2211156
EPA 353.2 Rev. 2.0	12/04/2020			12/08/2020 11:07	Beverly Y. Sanders	2211151
	12/04/2020			12/08/2020 11:08	Beverly Y. Sanders	2211152
	12/04/2020			12/08/2020 11:10	Beverly Y. Sanders	2211156
EPA 365.1 Rev. 2.0	12/04/2020	12/08/2020 17:16	Yen Ta	12/10/2020 11:01	Benjamin T. Nordmann	2211151
	12/04/2020	12/08/2020 17:16	Yen Ta	12/10/2020 11:25	Benjamin T. Nordmann	2211152
	12/04/2020	12/08/2020 17:16	Yen Ta	12/14/2020 12:47	Lipi Saha	2211156
EPA 365.1 Rev. 2.0 dissolved	12/04/2020			12/04/2020 16:11	Ping Hua	2211157
	12/04/2020			12/04/2020 16:34	Ping Hua	2211154
	12/04/2020			12/04/2020 16:36	Ping Hua	2211153
EPA 8321B	12/04/2020	12/07/2020 08:30	Hoor Shaik	12/10/2020 17:01	Juyoung Kim	2211164
	12/04/2020	12/07/2020 11:00	Rebecca Ware	12/07/2020 19:21	Rebecca Ware	2211164
	12/04/2020	12/07/2020 11:00	Rebecca Ware	12/09/2020 21:37	Rebecca Ware	2211164
SM 2120 B-2011	12/04/2020			12/04/2020 17:20	Benjamin T. Nordmann	2211155
	12/04/2020			12/04/2020 17:26	Benjamin T. Nordmann	2211149
	12/04/2020			12/04/2020 17:27	Benjamin T. Nordmann	2211150
SM 2320 B-2011	12/04/2020			12/07/2020 20:31	Dale L. Simmons	2211149
	12/04/2020			12/07/2020 21:18	Dale L. Simmons	2211150
	12/04/2020			12/07/2020 21:30	Dale L. Simmons	2211155
SM 2340B	12/04/2020			12/10/2020 11:13	Betina Topolski	2211165
	12/04/2020			12/10/2020 11:24	Betina Topolski	2211166
SM 2540 C-2011	12/04/2020			12/09/2020 14:21	Yijie Li	2211149, 2211150, 2211155
SM 2540 D-2011	12/04/2020			12/09/2020 14:21	Yijie Li	2211149, 2211150, 2211155

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	12/04/2020			12/07/2020 20:31	Dale L. Simmons	2211149
	12/04/2020			12/09/2020 19:36	Dale L. Simmons	2211150
	12/04/2020			12/09/2020 19:41	Dale L. Simmons	2211155
SM 5310 B-2011	12/04/2020			12/09/2020 03:53	David Boose	2211151
	12/04/2020			12/09/2020 04:05	David Boose	2211152
	12/04/2020			12/09/2020 04:18	David Boose	2211156