

Chemical Analysis Report

NE-DIST-2020-01-29-01

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

Event Description: **Nassau West 2 2020**

Request ID: **RQ-2020-01-27-13**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

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: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 21-FEB-2020 16:44



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: St.Marys River at SR 121 GA Line

Collection Date/Time: 01/28/2020 09:45

Field ID: 19010002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152546	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P377934	
	EPA 300.0 Rev. 2.1	Chloride	9.3		mg Cl/L	P378367	
		Sulfate	1.1		mg SO4/L	P378365	
		Color (true)	360		PCU	P377945	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P378279	
	SM 2540 C-2011	TDS	110		mg/L	P378374	
	SM 2540 D-2011	TSS	2	U	mg/L	P378138	
	SM 4500 F-C-2011	Fluoride	0.039	I	mg F/L	P378288	
2152548	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P378383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P378318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P378211	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P378160	
	SM 5310 B-2011	Organic Carbon	43		mg C/L	P378352	
2152550	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P377903	
2152577	EPA 200.7 Rev. 4.4	Barium	16.2		ug/L	P377975	
		Calcium	3.23		mg/L	P377975	
		Iron	750		ug/L	P377975	
		Magnesium	1.86		mg/L	P377975	
		Potassium	0.30	U	mg/L	P377975	
		Sodium	5.5		mg/L	P377975	
		Zinc	17	I	ug/L	P377975	
	EPA 200.8 Rev. 5.4	Aluminum	480		ug/L	P377975	
		Antimony	0.061	I	ug/L	P377975	
		Arsenic	0.45		ug/L	P377975	
		Boron**	12.5		ug/L	P377975	
		Cadmium	0.034	I	ug/L	P377975	
		Chromium	0.64	I	ug/L	P377975	
		Copper	3.90		ug/L	P377975	
		Lead	1.03		ug/L	P377975	
		Nickel	0.65	I	ug/L	P377975	
		Selenium	0.20	U	ug/L	P377975	
		Silver	0.010	U	ug/L	P377975	
		Thallium	0.10	U	ug/L	P377975	
		Hardness	15.7		mg/L	P377975	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The copper and lead results were confirmed in the undigested sample on 02/13/2020.

Sample Location: St.Marys S Prong @ US 90

Collection Date/Time: 01/28/2020 10:50

Field ID: 19010021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152547	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P377934	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P378367	
		Sulfate	5.9		mg SO4/L	P378365	
		Color (true)	160		PCU	P377945	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P378279	
	SM 2540 C-2011	TDS	125		mg/L	P378374	
	SM 2540 D-2011	TSS	2	U	mg/L	P378138	
	SM 4500 F-C-2011	Fluoride	0.094	I	mg F/L	P378288	
2152549	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P378383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P378318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.71		mg N/L	P378211	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P378160	
	SM 5310 B-2011	Organic Carbon	23		mg C/L	P378352	
2152551	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.26		mg P/L	P377903	
2152578	EPA 200.7 Rev. 4.4	Barium	30.0		ug/L	P377975	
		Calcium	8.71		mg/L	P377975	
		Iron	560		ug/L	P377975	
		Magnesium	3.61		mg/L	P377975	
		Potassium	1.7		mg/L	P377975	
		Sodium	12.5		mg/L	P377975	
		Zinc	8.1	I	ug/L	P377975	
	EPA 200.8 Rev. 5.4	Aluminum	377		ug/L	P377975	
		Antimony	0.086	I	ug/L	P377975	
		Arsenic	0.42		ug/L	P377975	
		Boron**	24.5		ug/L	P377975	
		Cadmium	0.023	I	ug/L	P377975	
		Chromium	0.70	I	ug/L	P377975	
		Copper	0.40	U	ug/L	P377975	
		Lead	0.37	I	ug/L	P377975	
		Nickel	0.76	I	ug/L	P377975	
		Selenium	0.20	U	ug/L	P377975	
		Silver	0.010	U	ug/L	P377975	
		Thallium	0.10	U	ug/L	P377975	
	SM 2340B	Hardness	36.6		mg/L	P377975	

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: Deep Creek @ US 90

Collection Date/Time: 01/28/2020 12:10

Field ID: 19010085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152552	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P377934	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P378367	
		Sulfate	6.5		mg SO4/L	P378365	
		Color (true)	270		PCU	P377945	
	SM 2320 B-2011	Total Alkalinity	36		mg CaCO3/L	P378279	
	SM 2540 C-2011	TDS	162		mg/L	P378375	
	SM 2540 D-2011	TSS	2	I	mg/L	P378139	
	SM 4500 F-C-2011	Fluoride	0.082	I	mg F/L	P378288	
2152553	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P378413	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P378318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P378211	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P378160	
	SM 5310 B-2011	Organic Carbon	28		mg C/L	P378352	
2152554	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P377903	
2152579	EPA 200.7 Rev. 4.4	Barium	18.7		ug/L	P377975	
		Calcium	15.4		mg/L	P377975	
		Iron	940		ug/L	P377975	
		Magnesium	3.97		mg/L	P377975	
		Potassium	2.9		mg/L	P377975	
		Sodium	17.1		mg/L	P377975	
		Zinc	9.7	I	ug/L	P377975	
	EPA 200.8 Rev. 5.4	Aluminum	309		ug/L	P377975	
		Antimony	0.15	I	ug/L	P377975	
		Arsenic	0.59		ug/L	P377975	
		Boron**	47.0		ug/L	P377975	
		Cadmium	0.043	I	ug/L	P377975	
		Chromium	1.3	I	ug/L	P377975	
		Copper	0.70	I	ug/L	P377975	
		Lead	0.52		ug/L	P377975	
		Nickel	1.2	I	ug/L	P377975	
		Selenium	0.20	U	ug/L	P377975	
		Silver	0.010	U	ug/L	P377975	
		Thallium	0.10	U	ug/L	P377975	
	SM 2340B	Hardness	54.9		mg/L	P377975	

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: Unnamed Branch @ CR 125

Collection Date/Time: 01/28/2020 11:18

Field ID: 19010123

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2152572	EPA 8321B	2,4-D	0.0020	U	ug/L	P377875	
		Acesulfame K**	0.10	U	ug/L	P377926	
		AMPA**	0.10	U	ug/L	P377926	MS
		Sucralose**	0.035	I	ug/L	P377926	
		Acetaminophen**	0.0080	U	ug/L	P377875	
		Acetamiprid**	0.0020	U	ug/L	P377875	
		Endothall**	0.25	U	ug/L	P377926	
		Glufosinate**	0.10	U	ug/L	P377926	
		Glyphosate**	0.10	U	ug/L	P377926	
		Afidopyropen**	0.0020	UJ	ug/L	P377875	
		Bentazon	8.0E-04	U	ug/L	P377875	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P377875	
		Carbamazepine**	8.0E-04	U	ug/L	P377875	
		Clothianidin**	0.0020	U	ug/L	P377875	
		Dinotefuran**	0.0020	U	ug/L	P377875	
		Diuron	0.0020	U	ug/L	P377875	
		Fenuron	0.016	U	ug/L	P377875	RPD
		Fluridone**	8.0E-04	U	ug/L	P377875	
		Imazapyr**	0.0055	I	ug/L	P377875	
		Hydrocodone**	0.0020	U	ug/L	P377875	
		Ibuprofen**	0.020	U	ug/L	P377875	
		Imidacloprid	0.0020	U	ug/L	P377875	
		Linuron	0.0040	U	ug/L	P377875	
		Mandestrobin**	0.0020	UJ	ug/L	P377875	
		MCPP	0.0020	U	ug/L	P377875	
		Naproxen**	0.0080	U	ug/L	P377875	
		Primidone**	0.0040	U	ug/L	P377875	
		Pyraclostrobin**	0.0020	U	ug/L	P377875	
		Thiamethoxam**	0.0020	U	ug/L	P377875	
		Tolfenpyrad**	0.0020	U	ug/L	P377875	
		Triclopyr**	0.0040	U	ug/L	P377875	

Ref. Method and Comment:

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for bentazon and imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377934

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377975

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: P377975

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
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: P378365

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378383

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: P378413

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378318

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378211

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378160

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377903

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

Reference Method: EPA 8321B
Batch ID: P377875

Component	Result	Code	Units
2,4-D	0.0020	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: P377875

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

Reference Method: EPA 8321B
Batch ID: P377926

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: SM 2120 B-2011
Batch ID: P377945

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P378279

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

Reference Method: SM 2540 C-2011
Batch ID: P378374

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P378375

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378138

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P378139

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P378288

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P378352

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: P377975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	108		P	85 - 115
Iron	105		P	85 - 115
Magnesium	107		P	85 - 115
Potassium	102		P	85 - 115
Sodium	106		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	106		P	85 - 115
Arsenic	107		P	85 - 115
Boron	89.4		P	85 - 115
Cadmium	107		P	85 - 115
Chromium	108		P	85 - 115
Copper	106		P	85 - 115
Lead	106		P	85 - 115
Nickel	111		P	85 - 115
Selenium	104		P	85 - 115
Silver	97.1		P	85 - 115
Thallium	106		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378365

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378383

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.3		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P378318

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: P378211

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P378160

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P377903

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

Reference Method: EPA 8321B
 Batch ID: P377875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	132		P	30 - 160
Acetaminophen	83.2		P	30 - 160
Acetamiprid	94.8		P	30 - 160
Afidopyropen	101		P	30 - 160
Bentazon	73.6		P	30 - 160
Benzovindiflupyr	81.1		P	30 - 160
Carbamazepine	98.2		P	30 - 160
Clothianidin	88.7		P	30 - 160
Dinotefuran	93.2		P	30 - 160
Diuron	73.2		P	30 - 160
Fenuron	105		P	30 - 160
Fluridone	100		P	30 - 160
Hydrocodone	99.7		P	30 - 160
Ibuprofen	82.5		P	30 - 160
Imazapyr	90.5		P	30 - 160
Imidacloprid	103		P	30 - 160
Linuron	71.9		P	30 - 160
Mandestrobin	94.9		P	30 - 160
MCPP	142		P	30 - 160
Naproxen	70.8		P	30 - 160
Primidone	91.7		P	30 - 160
Pyraclostrobin	86.0		P	30 - 160
Thiamethoxam	101		P	30 - 160
Tolfenpyrad	56.4		P	30 - 160
Triclopyr	107		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P377926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	119		P	40 - 150
AMPA	133		P	40 - 150
Endothall	112		P	40 - 150
Glufosinate	124		P	40 - 150
Glyphosate	133		P	40 - 140
Sucralose	83.9		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P377945

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

Reference Method: SM 2320 B-2011
Batch ID: P378279

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P378288

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P378352

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152490	Barium	105	104	P/P	80 - 120
2152490	Calcium	110	109	P/P	80 - 120
2152490	Iron	109	109	P/P	80 - 120
2152490	Magnesium	110	109	P/P	80 - 120
2152490	Potassium	104	106	P/P	80 - 120
2152490	Sodium	106	107	P/P	80 - 120
2152490	Zinc	103	102	P/P	80 - 120
2152578	Barium	102		P	80 - 120
2152578	Calcium	108		P	80 - 120
2152578	Iron	106		P	80 - 120
2152578	Magnesium	106		P	80 - 120
2152578	Potassium	100		P	80 - 120
2152578	Sodium	106		P	80 - 120
2152578	Zinc	101		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152490	Aluminum	105	105	P/P	80 - 120
2152490	Antimony	106	106	P/P	80 - 120
2152490	Arsenic	109	108	P/P	80 - 120
2152490	Boron	92.2	91.8	P/P	80 - 120
2152490	Cadmium	107	107	P/P	80 - 120
2152490	Chromium	109	109	P/P	80 - 120
2152490	Copper	108	109	P/P	80 - 120
2152490	Lead	108	107	P/P	80 - 120
2152490	Nickel	109	109	P/P	80 - 120
2152490	Selenium	104	105	P/P	80 - 120
2152490	Silver	96.3	96.8	P/P	80 - 120
2152490	Thallium	108	108	P/P	80 - 120
2152578	Aluminum	102		P	80 - 120
2152578	Antimony	107		P	80 - 120
2152578	Arsenic	109		P	80 - 120
2152578	Boron	91.5		P	80 - 120
2152578	Cadmium	107		P	80 - 120
2152578	Chromium	107		P	80 - 120
2152578	Copper	107		P	80 - 120
2152578	Lead	107		P	80 - 120
2152578	Nickel	110		P	80 - 120
2152578	Selenium	103		P	80 - 120
2152578	Silver	94.6		P	80 - 120
2152578	Thallium	110		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152536	Sulfate	99.1		P	90 - 110
2152663	Sulfate	98.6		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152536	Chloride	99.0		P	90 - 110
2152663	Chloride	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152538	Ammonia-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152248	Ammonia-N	97.6	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152538	Kjeldahl Nitrogen	98.2	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152539	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152544	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152545	O-Phosphate-P	99.1	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P377875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152108	2,4-D	115	111	P/P	30 - 160
2152108	Acetaminophen	95.2	85.2	P/P	30 - 160
2152108	Acetamiprid	99.0	94.4	P/P	30 - 160
2152108	Afidopyropen	110	100	P/P	30 - 160
2152108	Benzovindiflupyr	85.2	76.8	P/P	30 - 160
2152108	Carbamazepine	70.2	81.6	P/P	30 - 160
2152108	Clothianidin	89.0	88.1	P/P	30 - 160
2152108	Dinotefuran	121	123	P/P	30 - 160
2152108	Diuron	65.2	67.2	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P377875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152108	Fenuron	137	77.7	P/P	30 - 160
2152108	Fluridone	106	97.1	P/P	30 - 160
2152108	Hydrocodone	103	97.0	P/P	30 - 160
2152108	Ibuprofen	86.5	76.8	P/P	30 - 160
2152108	Imidacloprid	151	153	P/P	30 - 160
2152108	Linuron	64.5	63.2	P/P	30 - 160
2152108	Mandestrobin	93.4	85.1	P/P	30 - 160
2152108	MCPP	119	109	P/P	30 - 160
2152108	Naproxen	80.4	76.0	P/P	30 - 160
2152108	Primidone	94.4	89.4	P/P	30 - 160
2152108	Pyraclostrobin	88.9	84.0	P/P	30 - 160
2152108	Thiamethoxam	134	126	P/P	30 - 160
2152108	Tolfenpyrad	53.6	49.9	P/P	30 - 160
2152108	Triclopyr	98.6	82.9	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P377926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152482	Acesulfame K	53.6	50.4	P/P	40 - 150
2152482	AMPA	177	176	F/F	40 - 150
2152482	Endothall	109	101	P/P	40 - 150
2152482	Glufosinate	114	116	P/P	40 - 150
2152482	Glyphosate	104	92.7	P/P	40 - 140
2152482	Sucralose	81.0	83.3	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P378288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152543	Fluoride	103	103	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P378352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2152544	Organic Carbon	99.1	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P377934

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152535	Turbidity	8.47	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P377975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152490	Barium	1.18	Spike	P	0 - 20
2152490	Calcium	0.362	Spike	P	0 - 20
2152490	Iron	0.0121	Spike	P	0 - 20
2152490	Magnesium	0.235	Spike	P	0 - 20
2152490	Potassium	1.51	Spike	P	0 - 20
2152490	Sodium	0.545	Spike	P	0 - 20
2152490	Zinc	1.35	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P377975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152490	Aluminum	0.00406	Spike	P	0 - 20
2152490	Antimony	0.201	Spike	P	0 - 20
2152490	Arsenic	0.199	Spike	P	0 - 20
2152490	Boron	0.320	Spike	P	0 - 20
2152490	Cadmium	0.367	Spike	P	0 - 20
2152490	Chromium	0.200	Spike	P	0 - 20
2152490	Copper	0.127	Spike	P	0 - 20
2152490	Lead	0.900	Spike	P	0 - 20
2152490	Nickel	0.262	Spike	P	0 - 20
2152490	Selenium	1.10	Spike	P	0 - 20
2152490	Silver	0.571	Spike	P	0 - 20
2152490	Thallium	0.432	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152663	Sulfate	0.770	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P378367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152663	Chloride	0.953	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152538	Ammonia-N	0.0208	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P378413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152248	Ammonia-N	0.619	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P378318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152538	Kjeldahl Nitrogen	4.90	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P378211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152539	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P378160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152544	Total-P	2.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P377903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152545	O-Phosphate-P	0.904	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P377875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152108	2,4-D	2.81	Spike	P	0 - 30
2152108	Acetaminophen	11.2	Spike	P	0 - 30
2152108	Acetamiprid	4.76	Spike	P	0 - 30
2152108	Afidopyropen	9.02	Spike	P	0 - 30
2152108	Bentazon	1.94	Spike	P	0 - 30
2152108	Benzovindiflupyr	10.4	Spike	P	0 - 30
2152108	Carbamazepine	14.2	Spike	P	0 - 30
2152108	Clothianidin	1.04	Spike	P	0 - 30
2152108	Dinotefuran	1.51	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P377875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152108	Diuron	3.09	Spike	P	0 - 30
2152108	Fenuron	55.4	Spike	F	0 - 30
2152108	Fluridone	6.62	Spike	P	0 - 30
2152108	Hydrocodone	5.55	Spike	P	0 - 30
2152108	Ibuprofen	12.0	Spike	P	0 - 30
2152108	Imazapyr	12.3	Spike	P	0 - 30
2152108	Imidacloprid	1.08	Spike	P	0 - 30
2152108	Linuron	2.04	Spike	P	0 - 30
2152108	Mandestrobin	9.26	Spike	P	0 - 30
2152108	MCP	8.87	Spike	P	0 - 30
2152108	Naproxen	5.70	Spike	P	0 - 30
2152108	Primidone	5.47	Spike	P	0 - 30
2152108	Pyraclostrobin	5.64	Spike	P	0 - 30
2152108	Thiamethoxam	5.98	Spike	P	0 - 30
2152108	Tolfenpyrad	7.08	Spike	P	0 - 30
2152108	Triclopyr	17.3	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P377926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152482	Acesulfame K	6.18	Spike	P	0 - 30
2152482	AMPA	0.749	Spike	P	0 - 30
2152482	Endothall	7.47	Spike	P	0 - 30
2152482	Glufosinate	2.55	Spike	P	0 - 30
2152482	Glyphosate	11.3	Spike	P	0 - 30
2152482	Sucralose	2.73	Spike	P	0 - 30

Reference Method: SM 2120 B-2011
Batch ID: P377945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152534	Color (true)	2.64	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P378279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152543	Total Alkalinity	0.459	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P378374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152543	TDS	3.64	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P378375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152516	TDS	5.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P378288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152543	Fluoride	0.479	Spike	P	0 - 2.5

Reference Method: SM 5310 B-2011
Batch ID: P378352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2152544	Organic Carbon	0.934	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2152572
Field Sample ID: 19010123

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	98.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	91.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.1	P	30 - 160
EPA 8321B	Diuron-d6	61.4	P	30 - 160
EPA 8321B	Endothall-d6	132	P	30 - 160
EPA 8321B	Endothall-d6	132	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	59.9	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	59.9	P	30 - 160
EPA 8321B	Ibuprofen-d3	77.9	P	30 - 160
EPA 8321B	Primidone-d5	87.8	P	30 - 160
EPA 8321B	Sucralose-d6	83.3	P	30 - 160
EPA 8321B	Sucralose-d6	83.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A97174

Included Lab Sample IDs: 2152550, 2152551, 2152554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.2	P/P	90 - 110
O-Phosphate-P	99.5	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97190

Included Lab Sample IDs: 2152546, 2152547, 2152552

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

Reference Method: SM 2120 B-2011

Run ID: A97193

Included Lab Sample IDs: 2152546, 2152547, 2152552

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

Reference Method: EPA 8321B

Run ID: A97267

Included Lab Sample IDs: 2152572

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	99.2	111	P/P	50 - 150
Acetaminophen	90.7	98.8	P/P	60 - 160
Acetamiprid	112	109	P/P	50 - 150
Afidopyropen	101	115	P/P	50 - 150
Bentazon	102	105	P/P	50 - 160
Benzovindiflupyr	106	108	P/P	50 - 150
Carbamazepine	90.9	102	P/P	60 - 150
Clothianidin	105	101	P/P	60 - 150
Dinotefuran	99.6	105	P/P	50 - 150
Diuron	104	94.0	P/P	60 - 150
Fenuron	103	106	P/P	60 - 150
Fluridone	106	110	P/P	60 - 160
Hydrocodone	103	101	P/P	60 - 150
Ibuprofen	98.3	97.8	P/P	50 - 160
Imazapyr	102	99.9	P/P	50 - 150
Imidacloprid	96.1	104	P/P	60 - 150
Linuron	107	101	P/P	60 - 150
Mandestrobin	110	105	P/P	50 - 150
MCP	93.0	94.4	P/P	50 - 150
Naproxen	110	71.9	P/P	50 - 160
Primidone	99.8	100	P/P	60 - 150
Pyraclostrobin	109	112	P/P	60 - 150
Thiamethoxam	106	109	P/P	50 - 150
Tolfenpyrad	97.8	111	P/P	60 - 150
Triclopyr	106	114	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A97278

Included Lab Sample IDs: 2152577, 2152578, 2152579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	102	P/P	90 - 110
Barium	104	103	P/P	90 - 110
Calcium	101	101	P/P	90 - 110
Calcium	104	101	P/P	90 - 110
Iron	102	101	P/P	90 - 110
Iron	104	102	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Magnesium	104	102	P/P	90 - 110
Potassium	102	98.6	P/P	90 - 110
Potassium	98.6	98.2	P/P	90 - 110
Sodium	101	101	P/P	90 - 110
Sodium	104	101	P/P	90 - 110
Zinc	104	101	P/P	90 - 110
Zinc	105	104	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A97290

Included Lab Sample IDs: 2152572

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	83.2	78.1	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A97291

Included Lab Sample IDs: 2152548, 2152549, 2152553

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

Reference Method: EPA 8321B

Run ID: A97293

Included Lab Sample IDs: 2152572

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	108	82.4	P/P	60 - 160
Endothall	132	152	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A97294

Included Lab Sample IDs: 2152572

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	124	119	P/P	60 - 160
Glufosinate	101	109	P/P	60 - 160
Glyphosate	119	139	P/P	60 - 160

Reference Method: SM 2320 B-2011

Run ID: A97320

Included Lab Sample IDs: 2152546, 2152547, 2152552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A97320

Included Lab Sample IDs: 2152546, 2152547, 2152552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A97320

Included Lab Sample IDs: 2152546, 2152547, 2152552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A97327

Included Lab Sample IDs: 2152546, 2152547, 2152552

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	99.9	P/P	90 - 110
Sulfate	98.8	99.9	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A97338

Included Lab Sample IDs: 2152548, 2152549, 2152553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	106	P/P	90 - 110
Organic Carbon	99.2	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97346

Included Lab Sample IDs: 2152548, 2152549

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97355

Included Lab Sample IDs: 2152553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A97365

Included Lab Sample IDs: 2152548, 2152549, 2152553

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97374

Included Lab Sample IDs: 2152549, 2152553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
-----------	---------	---------	------------	----------------

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97374

Included Lab Sample IDs: 2152549, 2152553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	98.8	P/P	90 - 110
Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A97378

Included Lab Sample IDs: 2152548

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97402

Included Lab Sample IDs: 2152577, 2152578, 2152579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.7	96.8	P/P	90 - 110
Aluminum	98.7	98.0	P/P	90 - 110
Antimony	102	102	P/P	90 - 110
Antimony	99.7	99.6	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Arsenic	101	100	P/P	90 - 110
Cadmium	101	99.8	P/P	90 - 110
Cadmium	102	102	P/P	90 - 110
Chromium	99.3	99.3	P/P	90 - 110
Chromium	99.5	98.6	P/P	90 - 110
Copper	101	98.2	P/P	90 - 110
Copper	96.6	95.4	P/P	90 - 110
Lead	98.1	98.3	P/P	90 - 110
Lead	98.8	99.0	P/P	90 - 110
Selenium	100	101	P/P	90 - 110
Selenium	99.4	99.6	P/P	90 - 110
Thallium	97.8	98.6	P/P	90 - 110
Thallium	98.3	98.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97426

Included Lab Sample IDs: 2152577, 2152578, 2152579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	101	99.9	P/P	90 - 110
Nickel	99.9	101	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A97586

Included Lab Sample IDs: 2152577, 2152578, 2152579

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	95.4	93.5	P/P	90 - 110
Boron	96.2	96.5	P/P	90 - 110
Silver	97.6	98.9	P/P	90 - 110
Silver	97.9	97.4	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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						8.47	
EPA 200.7 Rev. 4.4	Barium	102	105	104	102			1.18
	Calcium	108	110	109	108			0.362
	Iron	105	109	109	106			0.0121
	Magnesium	107	110	109	106			0.235
	Potassium	102	104	106	100			1.51
	Sodium	106	106	107	106			0.545
	Zinc	101	103	102	101			1.35
EPA 200.8 Rev. 5.4	Aluminum	102	102	105	105			0.0040
	Antimony	106	106	106	107			0.201
	Arsenic	107	109	108	109			0.199
	Boron	89.4	92.2	91.8	91.5			0.320
	Cadmium	107	107	107	107			0.367
	Chromium	108	109	109	107			0.200
	Copper	106	108	109	107			0.127
	Lead	106	108	107	107			0.900
	Nickel	111	109	109	110			0.262
	Selenium	104	104	105	103			1.10
	Silver	97.1	96.3	96.8	94.6			0.571
	Thallium	106	108	108	110			0.432
EPA 300.0 Rev. 2.1	Chloride	102	99.4	99.0			0.953	
	Sulfate	102	98.6	99.1			0.770	
EPA 350.1 Rev. 2.0	Ammonia-N	101	99.5	99.5				0.0208
	Ammonia-N	99.3	97.6	98.5				0.619
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.2	104				4.90
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.5	98.0				0.509
EPA 365.1 Rev. 2.0	Total-P	102	101	103				2.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.1	100				0.904
EPA 8321B	2,4-D	132	115	111				2.81
	Acesulfame K	119	53.6	50.4				6.18
	Acetaminophen	83.2	95.2	85.2				11.2
	Acetamiprid	94.8	99.0	94.4				4.76
	Afidopyropen	101	110	100				9.02
	AMPA	133	177	176				0.749
	Bentazon	73.6						1.94
	Benzovindiflupyr	81.1	85.2	76.8				10.4
	Carbamazepine	98.2	70.2	81.6				14.2
	Clothianidin	88.7	89.0	88.1				1.04
	Dinotefuran	93.2	121	123				1.51
	Diuron	73.2	65.2	67.2				3.09
	Endothall	112	109	101				7.47
	Fenuron	105	137	77.7				55.4
	Fluridone	100	106	97.1				6.62
	Glufosinate	124	114	116				2.55
	Glyphosate	133	104	92.7				11.3
	Hydrocodone	99.7	103	97.0				5.55
	Ibuprofen	82.5	86.5	76.8				12.0
	Imazapyr	90.5						12.3
	Imidacloprid	103	151	153				1.08
	Linuron	71.9	64.5	63.2				2.04
	Mandestrobin	94.9	93.4	85.1				9.26
	MCPD	142	119	109				8.87
	Naproxen	70.8	80.4	76.0				5.70
	Primidone	91.7	94.4	89.4				5.47

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Pyraclostrobin	86.0	88.9	84.0		5.64
	Sucralose	83.9	83.3	81.0		2.73
	Thiamethoxam	101	134	126		5.98
	Tolfenpyrad	56.4	53.6	49.9		7.08
	Triclopyr	107	98.6	82.9		17.3
SM 2120 B-2011	Color (true)	100			2.64	
SM 2320 B-2011	Total Alkalinity	100			0.459	
SM 2540 C-2011	TDS				3.64	
	TDS				5.19	
SM 4500 F-C-2011	Fluoride	97.0	103	103		0.479
SM 5310 B-2011	Organic Carbon	97.7	99.1	100		0.934

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2152546, 2152547, 2152552
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2152577, 2152578, 2152579
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2152577, 2152578, 2152579
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2152546, 2152547, 2152552
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2152546, 2152547, 2152552
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2152548, 2152549, 2152553
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2152548, 2152549, 2152553
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2152548, 2152549, 2152553
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2152548, 2152549, 2152553
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2152550, 2152551, 2152554
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2152572
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2152572
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2152546, 2152547, 2152552
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2152546, 2152547, 2152552
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO ₃	2152577, 2152578, 2152579
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2152546, 2152547, 2152552
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2152546, 2152547, 2152552
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2152546, 2152547, 2152552
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2152548, 2152549, 2152553

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	01/29/2020			01/29/2020 17:38	Yen Ta	2152546, 2152547, 2152552
EPA 200.7 Rev. 4.4	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/03/2020 16:20	Betina Topolski	2152577
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/03/2020 16:28	Betina Topolski	2152578
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/03/2020 17:24	Betina Topolski	2152579
EPA 200.8 Rev. 5.4	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/07/2020 14:34	Justin Cutchin	2152578
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/07/2020 17:04	Justin Cutchin	2152577
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/07/2020 17:14	Justin Cutchin	2152579
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/10/2020 16:11	Justin Cutchin	2152578
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/10/2020 18:41	Justin Cutchin	2152577
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/10/2020 18:50	Justin Cutchin	2152579
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/17/2020 17:29	Justin Cutchin	2152578
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/17/2020 20:18	Justin Cutchin	2152577
	01/29/2020	01/30/2020 15:25	Elliott D. Healy	02/17/2020 20:27	Justin Cutchin	2152579
EPA 300.0 Rev. 2.1	01/29/2020			02/04/2020 21:41	Elliott Rodriguez	2152546
	01/29/2020			02/04/2020 21:53	Elliott Rodriguez	2152547
	01/29/2020			02/04/2020 22:06	Elliott Rodriguez	2152552
EPA 350.1 Rev. 2.0	01/29/2020			02/03/2020 14:02	Ping Hua	2152548
	01/29/2020			02/03/2020 14:03	Ping Hua	2152549
	01/29/2020			02/05/2020 12:41	Ping Hua	2152553
EPA 351.2 Rev. 2.0	01/29/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 11:55	Jhamieka S. Greenwood	2152548
	01/29/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 11:57	Jhamieka S. Greenwood	2152549
	01/29/2020	02/05/2020 14:50	Jhamieka S. Greenwood	02/06/2020 11:58	Jhamieka S. Greenwood	2152553
EPA 353.2 Rev. 2.0	01/29/2020			02/04/2020 10:15	Beverly Y. Sanders	2152548
	01/29/2020			02/04/2020 10:16	Beverly Y. Sanders	2152549
	01/29/2020			02/04/2020 10:17	Beverly Y. Sanders	2152553
EPA 365.1 Rev. 2.0	01/29/2020	02/03/2020 15:03	Lipi Saha	02/05/2020 12:08	Benjamin T. Nordmann	2152549
	01/29/2020	02/03/2020 15:03	Lipi Saha	02/05/2020 12:11	Benjamin T. Nordmann	2152553
	01/29/2020	02/03/2020 15:03	Lipi Saha	02/06/2020 13:47	Benjamin T. Nordmann	2152548
EPA 365.1 Rev. 2.0 dissolved	01/29/2020			01/29/2020 14:54	Julia Storbeck	2152551
	01/29/2020			01/29/2020 15:41	Julia Storbeck	2152550
	01/29/2020			01/29/2020 15:42	Julia Storbeck	2152554
EPA 8321B	01/29/2020	01/30/2020 10:00	Hoor Shaik	02/01/2020 19:57	Juyoung Kim	2152572
	01/29/2020	01/30/2020 12:00	Rebecca Ware	01/31/2020 01:00	Rebecca Ware	2152572
	01/29/2020	01/30/2020 12:00	Rebecca Ware	02/03/2020 16:27	Rebecca Ware	2152572
	01/29/2020	01/30/2020 12:00	Rebecca Ware	02/03/2020 22:06	Rebecca Ware	2152572
SM 2120 B-2011	01/29/2020			01/29/2020 19:00	Madeline Funaro	2152546
	01/29/2020			01/29/2020 19:01	Madeline Funaro	2152547
	01/29/2020			01/29/2020 19:02	Madeline Funaro	2152552
SM 2320 B-2011	01/29/2020			02/04/2020 02:50	Dale L. Simmons	2152546
	01/29/2020			02/04/2020 03:01	Dale L. Simmons	2152547

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	01/29/2020			02/04/2020 03:13	Dale L. Simmons	2152552
SM 2340B	01/29/2020			02/03/2020 16:20	Betina Topolski	2152577
	01/29/2020			02/03/2020 16:28	Betina Topolski	2152578
	01/29/2020			02/03/2020 17:24	Betina Topolski	2152579
	01/29/2020			01/30/2020 14:40	Sima Feizi	2152546, 2152547, 2152552
SM 2540 C-2011	01/29/2020			01/30/2020 14:40	Sima Feizi	2152546, 2152547, 2152552
SM 2540 D-2011	01/29/2020			02/04/2020 02:50	Dale L. Simmons	2152546
SM 4500 F-C-2011	01/29/2020			02/04/2020 03:01	Dale L. Simmons	2152547
	01/29/2020			02/04/2020 03:13	Dale L. Simmons	2152552
	01/29/2020			02/03/2020 06:02	Madeline Funaro	2152549
	01/29/2020			02/03/2020 06:57	Madeline Funaro	2152548
SM 5310 B-2011	01/29/2020			02/03/2020 07:52	Madeline Funaro	2152553