

Chemical Analysis Report

SO-DIST-2020-12-29-01

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

Event Description: **2020 SMP : Big Slough, Popash, Carrell Canal**

Request ID: **RQ-2020-12-14-49**

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: 17-JAN-2021 15:17



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: 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: Popash Creek @ Pritchett Pkwy

Collection Date/Time: 12/28/2020 10:45

Field ID: G3SD0079

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2215984	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P391828	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P392041	
		Sulfate	2.3		mg SO4/L	P392043	
	SM 2120 B-2011	Color (true)	96		PCU	P391824	
	SM 2320 B-2011	Total Alkalinity	76		mg CaCO3/L	P391892	
	SM 2540 C-2011	TDS	144		mg/L	P392111	
	SM 2540 D-2011	TSS	2	U	mg/L	P392114	
	SM 4500 F-C-2011	Fluoride	0.070	I	mg F/L	P391894	MS
	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P391884	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P391935	
2215985	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P391858	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P391913	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P391941	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P391826	
	EPA 8321B	2,4-D	0.047		ug/L	P391795	
2215990		Acesulfame K**	0.34	I	ug/L	P391850	
		AMPA**	0.81		ug/L	P391850	
		Sucralose**	0.14		ug/L	P391850	
		Acetaminophen**	0.0080	U	ug/L	P391795	
		Acetamiprid**	0.0020	U	ug/L	P391795	
		Endothall**	0.25	U	ug/L	P391850	
		Glufosinate**	0.10	U	ug/L	P391850	
		Glyphosate**	3.3		ug/L	P391850	
		Afidopyropen**	0.0020	U	ug/L	P391795	
		Bentazon	0.34		ug/L	P391795	
		Benzovindiflupyr**	0.0020	U	ug/L	P391795	
		Carbamazepine**	0.0013	I	ug/L	P391795	
		Clothianidin**	0.0020	U	ug/L	P391795	
		Dinotefuran**	0.0020	U	ug/L	P391795	
		Diuron	0.0029	I	ug/L	P391795	
		Fenuron	0.016	U	ug/L	P391795	
		Fluridone**	0.0033		ug/L	P391795	
		Imazapyr**	0.065		ug/L	P391795	
		Hydrocodone**	0.0020	U	ug/L	P391795	
		Ibuprofen**	0.020	U	ug/L	P391795	
		Imidacloprid	0.021		ug/L	P391795	
		Linuron	0.0040	U	ug/L	P391795	
		Mandestrobin**	0.0020	U	ug/L	P391795	
		MCPP	0.0059	I	ug/L	P391795	
		Naproxen**	0.0080	U	ug/L	P391795	
		Primidone**	0.0040	U	ug/L	P391795	
		Pyraclostrobin**	0.0020	U	ug/L	P391795	
		Thiamethoxam**	0.0020	U	ug/L	P391795	

Field ID: G3SD0079

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2215990	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P391795	
		Triclopyr**	0.0040	U	ug/L	P391795	

Ref. Method and Comment:
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 8321B: MS accuracy for bentazon 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: P391828

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391884

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391935

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391858

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391913

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391826

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

Reference Method: EPA 8321B
Batch ID: P391795

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P391795

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

Reference Method: EPA 8321B

Batch ID: P391850

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: P391824

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011

Batch ID: P391892

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

Reference Method: SM 2540 C-2011

Batch ID: P392111

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P392114

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P391894

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P391941

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391884

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391935

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: P391858

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: P391913

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.9		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P391795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	136		P	30 - 160
Acetaminophen	94.9		P	30 - 160
Acetamiprid	104		P	30 - 160
Afidopyropen	69.0		P	30 - 160
Bentazon	107		P	30 - 160
Benzovindiflupyr	80.8		P	30 - 160
Carbamazepine	88.3		P	30 - 160
Clothianidin	89.9		P	30 - 160
Dinotefuran	103		P	30 - 160
Diuron	68.4		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P391795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	95.7		P	30 - 160
Fluridone	88.2		P	30 - 160
Hydrocodone	103		P	30 - 160
Ibuprofen	72.1		P	30 - 160
Imazapyr	98.5		P	30 - 160
Imidacloprid	127		P	30 - 160
Linuron	69.6		P	30 - 160
Mandestrobin	105		P	30 - 160
MCPP	119		P	30 - 160
Naproxen	70.7		P	30 - 160
Primidone	94.8		P	30 - 160
Pyraclostrobin	78.0		P	30 - 160
Thiamethoxam	91.3		P	30 - 160
Tolfenpyrad	51.4		P	30 - 160
Triclopyr	111		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P391850

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	114		P	40 - 150
AMPA	68.4		P	40 - 150
Endothall	93.6		P	40 - 150
Glufosinate	99.6		P	40 - 150
Glyphosate	94.8		P	40 - 140
Sucralose	107		P	40 - 150

Reference Method: SM 2120 B-2011
Batch ID: P391824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P391892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.1		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P391894

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P391941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Chloride	97.5		P	90 - 110
2215984	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P392043

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215468	Sulfate	97.0		P	90 - 110
2215984	Sulfate	99.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2216087	Ammonia-N	96.8	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215932	Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215916	NO2NO3-N	96.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215916	Total-P	99.8	99.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2216028	O-Phosphate-P	99.0	99.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P391795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215905	2,4-D	124	123	P/P	30 - 160
2215905	Acetaminophen	79.7	79.1	P/P	30 - 160
2215905	Acetamiprid	86.6	83.7	P/P	30 - 160
2215905	Afidopyropen	63.1	64.4	P/P	30 - 160
2215905	Benzovindiflupyr	78.3	83.1	P/P	30 - 160
2215905	Carbamazepine	68.9	69.1	P/P	30 - 160
2215905	Clothianidin	82.1	79.9	P/P	30 - 160
2215905	Dinotefuran	102	98.8	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P391795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215905	Diuron	54.9	54.4	P/P	30 - 160
2215905	Fenuron	80.3	69.5	P/P	30 - 160
2215905	Fluridone	84.4	96.8	P/P	30 - 160
2215905	Hydrocodone	102	94.7	P/P	30 - 160
2215905	Ibuprofen	75.0	75.5	P/P	30 - 160
2215905	Imazapyr	94.3	113	P/P	30 - 160
2215905	Imidacloprid	130	133	P/P	30 - 160
2215905	Linuron	68.1	68.1	P/P	30 - 160
2215905	Mandestrobin	91.6	101	P/P	30 - 160
2215905	MCP	101	100	P/P	30 - 160
2215905	Naproxen	65.0	71.0	P/P	30 - 160
2215905	Primidone	83.4	72.3	P/P	30 - 160
2215905	Pyraclostrobin	71.9	73.3	P/P	30 - 160
2215905	Thiamethoxam	97.6	96.9	P/P	30 - 160
2215905	Tolfenpyrad	51.0	49.9	P/P	30 - 160
2215905	Triclopyr	98.3	110	P/P	30 - 160

Reference Method: EPA 8321B
 Batch ID: P391850

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215990	Acesulfame K	101	107	P/P	40 - 150
2215990	AMPA	59.4	62.8	P/P	40 - 150
2215990	Endothall	99.8	98.9	P/P	40 - 150
2215990	Glufosinate	90.8	97.8	P/P	40 - 150
2215990	Glyphosate	66.3	82.7	P/P	40 - 140
2215990	Sucralose	59.8	42.9	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
 Batch ID: P391894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215931	Fluoride	93.0	91.5	F/F	94 - 107

Reference Method: SM 5310 B-2011
 Batch ID: P391941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2215897	Organic Carbon	100		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P391828

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215896	Turbidity	0.871	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P392041

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Chloride	0.00329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P392043

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215468	Sulfate	0.448	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P391884

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216087	Ammonia-N	0.121	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P391935

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215932	Kjeldahl Nitrogen	0.377	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P391858

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215916	NO2NO3-N	1.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P391913

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215916	Total-P	0.0215	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P391826

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2216028	O-Phosphate-P	0.537	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P391795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215905	2,4-D	0.537	Spike	P	0 - 30
2215905	Acetaminophen	0.690	Spike	P	0 - 30
2215905	Acetamiprid	3.49	Spike	P	0 - 30
2215905	Afidopyropen	2.06	Spike	P	0 - 30
2215905	Bentazon	2.02	Spike	P	0 - 30
2215905	Benzovindiflupyr	5.90	Spike	P	0 - 30
2215905	Carbamazepine	0.225	Spike	P	0 - 30
2215905	Clothianidin	2.73	Spike	P	0 - 30
2215905	Dinotefuran	3.40	Spike	P	0 - 30
2215905	Diuron	0.951	Spike	P	0 - 30
2215905	Fenuron	14.4	Spike	P	0 - 30
2215905	Fluridone	13.7	Spike	P	0 - 30
2215905	Hydrocodone	7.45	Spike	P	0 - 30
2215905	Ibuprofen	0.654	Spike	P	0 - 30
2215905	Imazapyr	10.9	Spike	P	0 - 30
2215905	Imidacloprid	2.42	Spike	P	0 - 30
2215905	Linuron	0.00382	Spike	P	0 - 30
2215905	Mandestrobin	9.33	Spike	P	0 - 30
2215905	MCPP	0.460	Spike	P	0 - 30
2215905	Naproxen	8.82	Spike	P	0 - 30
2215905	Primidone	14.2	Spike	P	0 - 30
2215905	Pyraclostrobin	2.01	Spike	P	0 - 30
2215905	Thiamethoxam	0.740	Spike	P	0 - 30
2215905	Tolfenpyrad	2.14	Spike	P	0 - 30
2215905	Triclopyr	10.9	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P391850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215990	Acesulfame K	5.01	Spike	P	0 - 30
2215990	AMPA	3.62	Spike	P	0 - 30
2215990	Endothall	0.975	Spike	P	0 - 30
2215990	Glufosinate	7.44	Spike	P	0 - 30
2215990	Glyphosate	7.88	Spike	P	0 - 30
2215990	Sucralose	29.6	Spike	P	0 - 30

Reference Method: SM 2120 B-2011

Batch ID: P391824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215933	Color (true)	1.91	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P391892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215931	Total Alkalinity	2.78	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P392111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215931	TDS	3.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P391894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215931	Fluoride	1.45	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P391941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2215897	Organic Carbon	0.883	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2215990

Field Sample ID: G3SD0079

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	109	P	30 - 160
EPA 8321B	Acetaminophen-d4	62.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	46.6	P	30 - 160
EPA 8321B	Diuron-d6	48.5	P	30 - 160
EPA 8321B	Endothall-d6	92.7	P	40 - 160
EPA 8321B	Endothall-d6	92.7	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	83.8	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	83.8	P	40 - 160
EPA 8321B	Ibuprofen-d3	69.9	P	30 - 160
EPA 8321B	Primidone-d5	72.3	P	30 - 160
EPA 8321B	Sucralose-d6	34.3	P	30 - 160
EPA 8321B	Sucralose-d6	34.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A102815

Included Lab Sample IDs: 2215984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102817

Included Lab Sample IDs: 2215986

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102818

Included Lab Sample IDs: 2215984

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102832

Included Lab Sample IDs: 2215985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102851

Included Lab Sample IDs: 2215985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.9	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A102854

Included Lab Sample IDs: 2215984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	93.3	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A102854

Included Lab Sample IDs: 2215984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.8	96.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102858

Included Lab Sample IDs: 2215990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	120	102	P/P	60 - 160
AMPA	64.9	63.8	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A102858
 Included Lab Sample IDs: 2215990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Endothall	93.7	93.4	P/P	60 - 160
Glufosinate	98.4	98.8	P/P	60 - 160
Glyphosate	104	101	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A102859
 Included Lab Sample IDs: 2215990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	93.6	98.7	P/P	60 - 160

Reference Method: SM 5310 B-2011
 Run ID: A102874
 Included Lab Sample IDs: 2215985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A102875
 Included Lab Sample IDs: 2215984

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	99.8	P/P	90 - 110
Sulfate	98.7	99.5	P/P	90 - 110

Reference Method: EPA 8321B
 Run ID: A102879
 Included Lab Sample IDs: 2215990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	133	107	P/P	60 - 160
Acetamiprid	95.3	114	P/P	50 - 150
Afidopyropen	100	96.4	P/P	50 - 150
Benzovindiflupyr	128	121	P/P	50 - 160
Carbamazepine	146	148	P/P	60 - 150
Clothianidin	118	117	P/P	60 - 150
Dinotefuran	112	104	P/P	50 - 150
Diuron	138	130	P/P	60 - 160
Fenuron	137	131	P/P	60 - 150
Fluridone	139	129	P/P	60 - 160
Hydrocodone	118	117	P/P	60 - 150
Imidacloprid	119	116	P/P	60 - 150
Linuron	119	126	P/P	60 - 150
Mandestrobin	134	135	P/P	50 - 150
Primidone	101	117	P/P	60 - 150
Pyraclostrobin	124	120	P/P	60 - 150
Thiamethoxam	120	121	P/P	50 - 150
Tolfenpyrad	115	111	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A102896
Included Lab Sample IDs: 2215990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	93.0	P/P	50 - 150
Bentazon	124	120	P/P	50 - 160
Ibuprofen	112	91.6	P/P	50 - 160
Imazapyr	97.8	96.0	P/P	50 - 160
MCP	106	91.6	P/P	50 - 150
Naproxen	98.9	105	P/P	50 - 160
Triclopyr	101	93.3	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102901
Included Lab Sample IDs: 2215985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102905
Included Lab Sample IDs: 2215985

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	96.4	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.871	
EPA 300.0 Rev. 2.1	Chloride	98.9	97.5	97.6		0.0032	
	Sulfate	99.0	97.0	99.8		0.448	
EPA 350.1 Rev. 2.0	Ammonia-N	101	96.8	97.0			0.121
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	105	104			0.377
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	96.5	98.0			1.54
EPA 365.1 Rev. 2.0	Total-P	101	99.8	99.7			0.0215
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.9	99.0	99.6			0.537
EPA 8321B	2,4-D	136	124	123			0.537
	Acesulfame K	114	101	107			5.01
	Acetaminophen	94.9	79.1	79.7			0.690
	Acetamiprid	104	83.7	86.6			3.49
	Afidopyropen	69.0	64.4	63.1			2.06
	AMPA	68.4	59.4	62.8			3.62
	Bentazon	107					2.02
	Benzovindiflupyr	80.8	78.3	83.1			5.90
	Carbamazepine	88.3	69.1	68.9			0.225
	Clothianidin	89.9	79.9	82.1			2.73
	Dinotefuran	103	98.8	102			3.40
	Diuron	68.4	54.4	54.9			0.951
	Endothall	93.6	99.8	98.9			0.975
	Fenuron	95.7	69.5	80.3			14.4
	Fluridone	88.2	84.4	96.8			13.7
	Glufosinate	99.6	90.8	97.8			7.44
	Glyphosate	94.8	66.3	82.7			7.88
	Hydrocodone	103	94.7	102			7.45
	Ibuprofen	72.1	75.0	75.5			0.654
	Imazapyr	98.5	94.3	113			10.9
	Imidacloprid	127	133	130			2.42
	Linuron	69.6	68.1	68.1			0.0038
	Mandestrobin	105	91.6	101			9.33
	MCPP	119	101	100			0.460
	Naproxen	70.7	65.0	71.0			8.82
	Primidone	94.8	72.3	83.4			14.2
	Pyraclostrobin	78.0	71.9	73.3			2.01
	Sucralose	107	59.8	42.9			29.6
	Thiamethoxam	91.3	96.9	97.6			0.740
	Tolfenpyrad	51.4	51.0	49.9			2.14
	Triclopyr	111	98.3	110			10.9
SM 2120 B-2011	Color (true)	102				1.91	
SM 2320 B-2011	Total Alkalinity	97.1				2.78	
SM 2540 C-2011	TDS					3.55	
SM 4500 F-C-2011	Fluoride	95.7	93.0	91.5			1.45
SM 5310 B-2011	Organic Carbon	95.3	100				0.883

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2215984
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2215984
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2215984
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2215985
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2215985

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2215985
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2215985
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2215986
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2215990
EPA 8321B	Water soluble organic compounds by HPLC/MS/MS	2215990
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2215984
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2215984
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2215984
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2215984
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2215984
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2215985

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	12/29/2020			12/29/2020 14:07	Yen Ta	2215984
EPA 300.0 Rev. 2.1	12/29/2020			01/06/2021 21:26	Lipi Saha	2215984
EPA 350.1 Rev. 2.0	12/29/2020			01/03/2021 15:12	Ping Hua	2215985
EPA 351.2 Rev. 2.0	12/29/2020	01/04/2021 15:35	David Boose	01/06/2021 13:52	Virginia P. Brown	2215985
EPA 353.2 Rev. 2.0	12/29/2020			12/30/2020 10:03	Beverly Y. Sanders	2215985
EPA 365.1 Rev. 2.0	12/29/2020	01/04/2021 13:12	Yen Ta	01/06/2021 11:34	Shengyu Wang	2215985
EPA 365.1 Rev. 2.0 dissolved	12/29/2020			12/29/2020 15:02	Blanca Fach	2215986
EPA 8321B	12/29/2020	01/04/2021 09:00	Hoor Shaik	01/05/2021 00:11	Juyoung Kim	2215990
	12/29/2020	01/04/2021 09:00	Hoor Shaik	01/05/2021 12:34	Juyoung Kim	2215990
	12/29/2020	01/04/2021 09:00	Hoor Shaik	01/06/2021 07:43	Juyoung Kim	2215990
	12/29/2020	12/30/2020 10:30	Rebecca Ware	12/30/2020 12:27	Rebecca Ware	2215990
	12/29/2020	12/30/2020 10:30	Rebecca Ware	12/30/2020 16:32	Rebecca Ware	2215990
SM 2120 B-2011	12/29/2020			12/29/2020 15:42	Benjamin T. Nordmann	2215984
SM 2320 B-2011	12/29/2020			12/30/2020 18:25	Dale L. Simmons	2215984
SM 2540 C-2011	12/29/2020			01/02/2021 13:21	Yijie Li	2215984
SM 2540 D-2011	12/29/2020			01/02/2021 13:21	Yijie Li	2215984
SM 4500 F-C-2011	12/29/2020			12/30/2020 18:25	Dale L. Simmons	2215984
SM 5310 B-2011	12/29/2020			01/04/2021 10:00	Touraj Touran	2215985