Chemical Analysis Report

SO-DIST-2021-09-29-02

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

Event Description: **2021 SMP : Lakes Park at Center**
Request ID: **RQ-2021-09-27-43**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 22-OCT-2021 18:36

B. Steinbock

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: Shell Creek Reservoir Mid **Collection Date/Time: 09/28/2021 10:55**

Field ID: G3SD0204 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2279321	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P404372	
	SM 2320 B-2011	Total Alkalinity	58		mg CaCO3/L	P404567	
	SM 2540 D-2011	TSS	4	I	mg/L	P404761	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P404571	
2279322	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P404479	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P404513	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.072		mg N/L	P404448	
	EPA 365.1 Rev. 2.0	Total-P	0.28		mg P/L	P404583	
	SM 5310 B-2011	Organic Carbon	25		mg C/L	P404842	
2279323	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.23		mg P/L	P404367	
2279329	EPA 8321B	2,4-D	0.24		ug/L	P404499	
		Acesulfame K	0.10	U	ug/L	P404276	
		2,4,5-T	0.0040	U	ug/L	P404499	
		AMPA	1.3		ug/L	P404276	
		Acetaminophen	0.0092	I	ug/L	P404499	RPD
		Acetamiprid	0.0020	U	ug/L	P404499	
		Endothall	0.25	U	ug/L	P404276	
		Glufosinate	0.10	U	ug/L	P404276	
		Glyphosate	1.9		ug/L	P404276	
		Afidopyropen	0.0020	U	ug/L	P404499	
		Bentazon	0.025		ug/L	P404499	
		Sucralose	0.018	I	ug/L	P404276	
		Benzovindiflupyr	0.0020	U	ug/L	P404499	
		Carbamazepine	8.0E-04	U	ug/L	P404499	
		Clothianidin	0.093		ug/L	P404499	
		Dinotefuran	0.0020	U	ug/L	P404499	
		Diuron	0.11		ug/L	P404499	
		Fenuron	0.016	U	ug/L	P404499	
		Fluridone	0.0081		ug/L	P404499	
		Imazapyr	0.049		ug/L	P404499	
		Hydrocodone	0.0020	U	ug/L	P404499	
		Ibuprofen	0.020	U	ug/L	P404499	
		Imidacloprid	0.46		ug/L	P404499	
		Linuron	0.0040	U	ug/L	P404499	
		Mandestrobin	0.0020	U	ug/L	P404499	
		MCPP	0.0034	I	ug/L	P404499	
		Naproxen	0.0080	U	ug/L	P404499	
		Primidone	0.0040	U	ug/L	P404499	
		Pyraclostrobin	0.0020	U	ug/L	P404499	
		Thiamethoxam	0.18		ug/L	P404499	
		Tolfenpyrad	0.0020	U	ug/L	P404499	
		Triclopyr	0.0040	U	ug/L	P404499	
2279330	EPA 200.7 Rev. 4.4	Calcium	32.7		mg/L	P404542	

Field ID: G3SD0204 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2279330	EPA 200.7 Rev. 4.4	Iron	830		ug/L	P404542	
		Magnesium	8.88		mg/L	P404542	
		Manganese	34.8		ug/L	P404542	
		Zinc	6.2	I	ug/L	P404542	
	EPA 200.8 Rev. 5.4	Aluminum	92		ug/L	P404542	
		Antimony	0.099	I	ug/L	P404542	
		Arsenic	1.37		ug/L	P404542	
		Beryllium	0.015	I	ug/L	P404542	
		Cadmium	0.020	U	ug/L	P404542	
		Chromium	0.66	I	ug/L	P404542	
		Copper	1.82		ug/L	P404542	
		Lead	0.20	U	ug/L	P404542	
		Nickel	0.61	I	ug/L	P404542	
		Selenium	0.24	I	ug/L	P404542	
		Silver	0.010	U	ug/L	P404542	
		Thallium	0.10	U	ug/L	P404542	
	SM 2340B	Hardness	118		mg/L	P404542	

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404372

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404542

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404542

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Beryllium	0.010	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
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 350.1 Rev. 2.0
Batch ID: P404479

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404513

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404448

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404583

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

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

Reference Method: EPA 8321B
Batch ID: P404276

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: P404499

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
Mandestrobin	0.0020	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-2011
Batch ID: P404567

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P404761

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P404842

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: P404542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	108		P	85 - 115
Magnesium	107		P	85 - 115
Manganese	103		P	85 - 115
Zinc	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	102		P	85 - 115
Beryllium	105		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	96.9		P	85 - 115
Copper	98.3		P	85 - 115
Lead	96.6		P	85 - 115
Nickel	98.4		P	85 - 115
Selenium	97.4		P	85 - 115
Silver	97.1		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404479

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404448

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404583

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P404276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	79.8		P	40 - 150
AMPA	92.7		P	40 - 160
Endothall	69.3		P	40 - 150
Glufosinate	97.9		P	40 - 160
Glyphosate	88.3		P	40 - 160
Sucralose	66.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P404499

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	79.5		P	40 - 150
2,4,5-T	75.3		P	40 - 150
Acetaminophen	83.4		P	30 - 150
Acetamiprid	77.5		P	40 - 150
Afidopyropen	68.7		P	40 - 150
Bentazon	103		P	30 - 150
Benzovindiflupyr	69.2		P	40 - 150
Carbamazepine	85.9		P	40 - 150
Clothianidin	86.5		P	40 - 150
Dinotefuran	88.8		P	40 - 150
Diuron	95.8		P	40 - 150
Fenuron	86.4		P	40 - 150
Fluridone	77.0		P	40 - 150
Hydrocodone	92.7		P	40 - 150
Ibuprofen	70.3		P	40 - 150
Imazapyr	78.3		P	40 - 150
Imidacloprid	85.3		P	40 - 150
Linuron	79.7		P	40 - 150
Mandestrobin	74.0		P	40 - 150
MCPP	79.4		P	40 - 150
Naproxen	83.1		P	40 - 150
Primidone	72.6		P	40 - 150
Pyraclostrobin	62.7		P	40 - 150
Thiamethoxam	87.3		P	40 - 150
Tolfenpyrad	40.6		P	30 - 150
Triclopyr	81.8		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P404567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.7		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P404842

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279028	Calcium	103		P	80 - 120
2279028	Iron	108		P	80 - 120
2279028	Magnesium	108		P	80 - 120
2279028	Manganese	103		P	80 - 120
2279028	Zinc	106		P	80 - 120
2279286	Calcium	105	101	P/P	80 - 120
2279286	Iron	108	105	P/P	80 - 120
2279286	Magnesium	107	104	P/P	80 - 120
2279286	Manganese	103	99.7	P/P	80 - 120
2279286	Zinc	105	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279028	Aluminum	101		P	80 - 120
2279028	Antimony	107		P	80 - 120
2279028	Arsenic	104		P	80 - 120
2279028	Beryllium	108		P	80 - 120
2279028	Cadmium	104		P	80 - 120
2279028	Chromium	100		P	80 - 120
2279028	Copper	100		P	80 - 120
2279028	Lead	101		P	80 - 120
2279028	Nickel	99.4		P	80 - 120
2279028	Selenium	102		P	80 - 120
2279028	Silver	97.7		P	80 - 120
2279028	Thallium	109		P	80 - 120
2279286	Aluminum	101	101	P/P	80 - 120
2279286	Antimony	104	106	P/P	80 - 120
2279286	Arsenic	99.9	102	P/P	80 - 120
2279286	Beryllium	103	105	P/P	80 - 120
2279286	Cadmium	101	101	P/P	80 - 120
2279286	Chromium	98.0	100	P/P	80 - 120
2279286	Copper	97.2	99.3	P/P	80 - 120
2279286	Lead	98.5	100	P/P	80 - 120
2279286	Nickel	95.3	96.6	P/P	80 - 120
2279286	Selenium	96.6	99.3	P/P	80 - 120
2279286	Silver	96.9	98.1	P/P	80 - 120
2279286	Thallium	105	107	P/P	80 - 120

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279012	Ammonia-N	94.8	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279280	Kjeldahl Nitrogen	101	92.0	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404448

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279290	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279161	Total-P	102	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279281	O-Phosphate-P	99.5	99.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P404276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278459	Acesulfame K	105	112	P/P	40 - 150
2278459	AMPA	96.6	94.8	P/P	40 - 160
2278459	Endothall	94.8	96.1	P/P	40 - 150
2278459	Glufosinate	101	103	P/P	40 - 160
2278459	Glyphosate	80.4	79.9	P/P	40 - 160
2278459	Sucralose	77.1	76.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P404499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278894	2,4-D	114	118	P/P	40 - 150
2278894	2,4,5-T	114	125	P/P	40 - 150
2278894	Acetaminophen	93.9	137	P/P	30 - 150
2278894	Acetamiprid	83.5	97.2	P/P	40 - 150
2278894	Afidopyropen	66.7	82.2	P/P	40 - 150
2278894	Bentazon	104	116	P/P	30 - 150
2278894	Benzovindiflupyr	89.2	97.7	P/P	40 - 150
2278894	Carbamazepine	98.4	118	P/P	40 - 150
2278894	Clothianidin	108	126	P/P	40 - 150
2278894	Dinotefuran	101	120	P/P	40 - 150
2278894	Diuron	94.0	116	P/P	40 - 150
2278894	Fenuron	97.4	107	P/P	40 - 150
2278894	Fluridone	88.3	97.4	P/P	40 - 150
2278894	Hydrocodone	84.2	111	P/P	40 - 150
2278894	Ibuprofen	98.8	113	P/P	40 - 150
2278894	Imazapyr	104	137	P/P	40 - 150
2278894	Imidacloprid	106	135	P/P	40 - 150
2278894	Linuron	75.3	85.4	P/P	40 - 150
2278894	Mandestrobin	90.0	104	P/P	40 - 150
2278894	MCPP	119	128	P/P	40 - 150
2278894	Naproxen	115	115	P/P	40 - 150
2278894	Primidone	96.1	109	P/P	40 - 150
2278894	Pyraclostrobin	78.2	91.4	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P404499

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278894	Thiamethoxam	109	121	P/P	40 - 150
2278894	Tolfenpyrad	51.1	51.2	P/P	30 - 150
2278894	Triclopyr	91.5	113	P/P	40 - 150

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279388	Fluoride	98.9	96.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P404842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279274	Organic Carbon	95.6	96.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279321	Turbidity	7.65	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P404542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279286	Calcium	2.37	Spike	P	0 - 20
2279286	Iron	2.84	Spike	P	0 - 20
2279286	Magnesium	2.57	Spike	P	0 - 20
2279286	Manganese	3.32	Spike	P	0 - 20
2279286	Zinc	3.05	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P404542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279286	Aluminum	0.0194	Spike	P	0 - 20
2279286	Antimony	1.62	Spike	P	0 - 20
2279286	Arsenic	1.55	Spike	P	0 - 20
2279286	Beryllium	2.16	Spike	P	0 - 20
2279286	Cadmium	0.483	Spike	P	0 - 20
2279286	Chromium	2.31	Spike	P	0 - 20
2279286	Copper	2.15	Spike	P	0 - 20
2279286	Lead	1.65	Spike	P	0 - 20
2279286	Nickel	1.34	Spike	P	0 - 20
2279286	Selenium	2.81	Spike	P	0 - 20
2279286	Silver	1.24	Spike	P	0 - 20
2279286	Thallium	2.61	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279012	Ammonia-N	0.981	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279280	Kjeldahl Nitrogen	8.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279290	NO2NO3-N	0.735	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279161	Total-P	4.94	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279281	O-Phosphate-P	0.401	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P404276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278459	Acesulfame K	6.01	Spike	P	0 - 30
2278459	AMPA	1.90	Spike	P	0 - 30
2278459	Endothall	1.35	Spike	P	0 - 30
2278459	Glufosinate	1.93	Spike	P	0 - 30
2278459	Glyphosate	0.672	Spike	P	0 - 30
2278459	Sucralose	0.911	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P404499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278894	2,4-D	3.34	Spike	P	0 - 30
2278894	2,4,5-T	9.33	Spike	P	0 - 30
2278894	Acetaminophen	37.3	Spike	F	0 - 30
2278894	Acetamiprid	15.2	Spike	P	0 - 30
2278894	Afidopyropen	20.9	Spike	P	0 - 30
2278894	Bentazon	11.2	Spike	P	0 - 30
2278894	Benzovindiflupyr	9.08	Spike	P	0 - 30
2278894	Carbamazepine	17.9	Spike	P	0 - 30
2278894	Clothianidin	15.1	Spike	P	0 - 30
2278894	Dinotefuran	17.4	Spike	P	0 - 30
2278894	Diuron	20.6	Spike	P	0 - 30
2278894	Fenuron	9.73	Spike	P	0 - 30
2278894	Fluridone	9.81	Spike	P	0 - 30
2278894	Hydrocodone	27.2	Spike	P	0 - 30
2278894	Ibuprofen	13.3	Spike	P	0 - 30
2278894	Imazapyr	24.8	Spike	P	0 - 30
2278894	Imidacloprid	23.8	Spike	P	0 - 30
2278894	Linuron	12.6	Spike	P	0 - 30
2278894	Mandestrobin	14.5	Spike	P	0 - 30
2278894	MCPP	7.54	Spike	P	0 - 30
2278894	Naproxen	0.256	Spike	P	0 - 30
2278894	Primidone	12.9	Spike	P	0 - 30
2278894	Pyraclostrobin	15.5	Spike	P	0 - 30
2278894	Thiamethoxam	10.7	Spike	P	0 - 30
2278894	Tolfenpyrad	0.144	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P404499

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278894	Triclopyr	21.4	Spike	P	0 - 30

Reference Method: SM 2320 B-2011
Batch ID: P404567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279388	Total Alkalinity	0.705	Sample	P	0 - 5.2

Reference Method: SM 4500 F-C-2011
Batch ID: P404571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279388	Fluoride	1.38	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P404842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279274	Organic Carbon	0.855	Spike	P	0 - 20

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2279329
Field Sample ID: G3SD0204

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	143	P	30 - 160
EPA 8321B	Acetaminophen-d4	108	P	30 - 160
EPA 8321B	Carbamazepine-d10	104	P	30 - 160
EPA 8321B	Diuron-d6	82.6	P	30 - 160
EPA 8321B	Endothall-d6	83.7	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	84.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	75.6	P	30 - 160
EPA 8321B	Primidone-d5	86.3	P	30 - 160
EPA 8321B	Sucralose-d6	78.7	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A108064
Included Lab Sample IDs: 2279323

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A108065
Included Lab Sample IDs: 2279321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 8321B
Run ID: A108094
Included Lab Sample IDs: 2279329

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	99.7	100	P/P	60 - 160
Glufosinate	111	104	P/P	60 - 160
Glyphosate	102	96.5	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A108099
Included Lab Sample IDs: 2279322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A108109
Included Lab Sample IDs: 2279322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.2	97.1	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A108117
Included Lab Sample IDs: 2279329

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	80.3	118	P/P	60 - 160
Endothall	86.5	78.3	P/P	60 - 160
Sucralose	82.6	83.4	P/P	60 - 160

Reference Method: SM 2320 B-2011
Run ID: A108145
Included Lab Sample IDs: 2279321

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.2	97.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-2011
Run ID: A108145
Included Lab Sample IDs: 2279321

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A108172
Included Lab Sample IDs: 2279322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	109	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A108176
Included Lab Sample IDs: 2279322

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A108188
Included Lab Sample IDs: 2279330

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	103	P/P	90 - 110
Antimony	105	107	P/P	90 - 110
Arsenic	103	103	P/P	90 - 110
Beryllium	104	103	P/P	90 - 110
Cadmium	102	105	P/P	90 - 110
Chromium	96.9	99.5	P/P	90 - 110
Copper	98.1	97.3	P/P	90 - 110
Lead	96.4	98.1	P/P	90 - 110
Nickel	97.3	96.4	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Silver	97.0	99.3	P/P	90 - 110
Thallium	103	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A108189
Included Lab Sample IDs: 2279330

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Manganese	100	100	P/P	90 - 110
Zinc	101	102	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A108255
Included Lab Sample IDs: 2279329

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	85.9	83.1	P/P	50 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A108255
Included Lab Sample IDs: 2279329

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4,5-T	82.9	87.1	P/P	50 - 150
Acetaminophen	89.0	89.2	P/P	60 - 160
Acetamiprid	95.0	89.0	P/P	50 - 150
Afidopyropen	101	101	P/P	50 - 150
Bentazon	97.9	116	P/P	50 - 160
Benzovindiflupyr	82.2	71.1	P/P	50 - 150
Carbamazepine	100	104	P/P	60 - 150
Clothianidin	108	108	P/P	60 - 150
Dinotefuran	108	107	P/P	50 - 150
Diuron	107	121	P/P	60 - 160
Fenuron	92.1	98.9	P/P	60 - 150
Fluridone	91.9	95.5	P/P	60 - 160
Hydrocodone	98.7	101	P/P	60 - 150
Ibuprofen	87.3	61.5	P/P	50 - 160
Imazapyr	88.1	99.5	P/P	50 - 150
Imidacloprid	84.7	104	P/P	60 - 150
Linuron	79.2	108	P/P	60 - 150
Mandestrobin	90.4	87.2	P/P	50 - 150
MCPP	81.8	89.4	P/P	50 - 150
Naproxen	104	80.1	P/P	50 - 160
Primidone	93.9	92.1	P/P	60 - 150
Pyraclostrobin	82.7	84.0	P/P	60 - 150
Thiamethoxam	106	95.1	P/P	50 - 150
Tolfenpyrad	89.7	85.5	P/P	60 - 150
Triclopyr	85.6	95.3	P/P	50 - 150

Reference Method: SM 5310 B-2011
Run ID: A108260
Included Lab Sample IDs: 2279322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.9	94.2	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			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						7.65	
EPA 200.7 Rev. 4.4	Calcium	104	103	105	101			2.37
	Iron	108	108	108	105			2.84
	Magnesium	107	108	107	104			2.57
	Manganese	103	103	103	99.7			3.32
	Zinc	104	106	105	102			3.05
EPA 200.8 Rev. 5.4	Aluminum	100	101	101	101			0.0194
	Antimony	102	107	104	106			1.62
	Arsenic	102	104	99.9	102			1.55
	Beryllium	105	108	103	105			2.16
	Cadmium	100	104	101	101			0.483
	Chromium	96.9	100	98.0	100			2.31
	Copper	98.3	100	97.2	99.3			2.15
	Lead	96.6	101	98.5	100			1.65
	Nickel	98.4	99.4	95.3	96.6			1.34
	Selenium	97.4	102	96.6	99.3			2.81
	Silver	97.1	97.7	96.9	98.1			1.24
	Thallium	101	109	105	107			2.61
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	94.8	95.8				0.981
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1	101	92.0				8.02
EPA 353.2 Rev. 2.0	NO2NO3-N	103	100	101				0.735
EPA 365.1 Rev. 2.0	Total-P	105	102	107				4.94
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.5	99.9				0.401
EPA 8321B	2,4-D	79.5	114	118				3.34
	2,4,5-T	75.3	114	125				9.33
	Acesulfame K	79.8	105	112				6.01
	Acetaminophen	83.4	93.9	137				37.3
	Acetamiprid	77.5	83.5	97.2				15.2
	Afidopyropen	68.7	66.7	82.2				20.9
	AMPA	92.7	96.6	94.8				1.90
	Bentazon	103	104	116				11.2
	Benzovindiflupyr	69.2	89.2	97.7				9.08
	Carbamazepine	85.9	98.4	118				17.9
	Clothianidin	86.5	108	126				15.1
	Dinotefuran	88.8	101	120				17.4
	Diuron	95.8	94.0	116				20.6
	Endothall	69.3	94.8	96.1				1.35
	Fenuron	86.4	97.4	107				9.73
	Fluridone	77.0	88.3	97.4				9.81
	Glufosinate	97.9	101	103				1.93
	Glyphosate	88.3	80.4	79.9				0.672
	Hydrocodone	92.7	84.2	111				27.2
	Ibuprofen	70.3	98.8	113				13.3
	Imazapyr	78.3	104	137				24.8
	Imidacloprid	85.3	106	135				23.8
	Linuron	79.7	75.3	85.4				12.6
	Mandestrobin	74.0	90.0	104				14.5
	MCPP	79.4	119	128				7.54
	Naproxen	83.1	115	115				0.256
	Primidone	72.6	96.1	109				12.9
	Pyraclostrobin	62.7	78.2	91.4				15.5
	Sucralose	66.8	77.1	76.4				0.911
	Thiamethoxam	87.3	109	121				10.7
	Tolfenpyrad	40.6	51.1	51.2				0.144

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Triclopyr	81.8	91.5	113			21.4
SM 2320 B-2011	Total Alkalinity	98.7				0.705	
SM 4500 F-C-2011	Fluoride	100	98.9	96.8			1.38
SM 5310 B-2011	Organic Carbon	96.0	95.6	96.6			0.855

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2279321
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2279330
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2279330
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2279322
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2279322
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2279322
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2279322
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2279323
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2279329
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2279321
SM 2340B	Hardness by calculation, in aqueous matrices, reported as mg/L CaCO3	2279330
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2279321
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2279321
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2279322

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	09/29/2021			09/29/2021 16:38	Khloe J Berg	2279321
EPA 200.7 Rev. 4.4	09/29/2021	10/05/2021 11:00	Emily M Philpot	10/06/2021 17:38	Josef B Mick	2279330
EPA 200.8 Rev. 5.4	09/29/2021	10/05/2021 11:00	Emily M Philpot	10/07/2021 00:06	Alexander Thompson	2279330
EPA 350.1 Rev. 2.0	09/29/2021			10/01/2021 14:55	Ping Hua	2279322
EPA 351.2 Rev. 2.0	09/29/2021	10/04/2021 13:50	Benjamin T. Nordmann	10/06/2021 10:26	Alexandra J Mattheus	2279322
EPA 353.2 Rev. 2.0	09/29/2021			10/01/2021 11:10	Beverly Y. Sanders	2279322
EPA 365.1 Rev. 2.0	09/29/2021	10/05/2021 13:20	Simonne.V. Calhoun	10/06/2021 12:08	Lipi Saha	2279322
EPA 365.1 Rev. 2.0 dissolved	09/29/2021			09/29/2021 15:45	James L Waggerby	2279323
EPA 8321B	09/29/2021	09/30/2021 13:00	Juyoung Kim	09/30/2021 18:40	Juyoung Kim	2279329
	09/29/2021	09/30/2021 13:00	Juyoung Kim	10/01/2021 14:48	Manjita Shrestha	2279329
	09/29/2021	10/05/2021 09:00	Hoor Shaik	10/09/2021 16:04	Juyoung Kim	2279329
SM 2320 B-2011	09/29/2021			10/02/2021 08:41	Dale L. Simmons	2279321
SM 2340B	09/29/2021			10/06/2021 17:38	Josef B Mick	2279330
SM 2540 D-2011	09/29/2021			09/30/2021 15:26	Yijie Li	2279321
SM 4500 F-C-2011	09/29/2021			10/02/2021 08:41	Dale L. Simmons	2279321
SM 5310 B-2011	09/29/2021			10/07/2021 00:41	Khloe J Berg	2279322