

Chemical Analysis Report

NE-DIST-2019-11-07-01

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

Event Description: **Deer Cr. makeup**
Request ID: **RQ-2019-11-04-70**
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

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-DEC-2019 12:53

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Deer CR @ Talleyrand Ave

Collection Date/Time: 11/06/2019 10:20

Field ID: 20030792

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2134501	EPA 180.1 Rev. 2.0	Turbidity	9.1		NTU	P373886	
	EPA 300.0	Bromide	14		mg Br/L	P374769	
	SM 2320 B-97	Total Alkalinity	139		mg CaCO3/L	P373988	
	SM 2540 D-97	TSS	4	IA	mg/L	P374154	
	SM 4500 F-C-97	Fluoride	0.51		mg F/L	P373994	
2134502	EPA 350.1 Rev. 2.0	Ammonia-N	0.29		mg N/L	P374188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P374218	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P374041	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P374138	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P374117	
2134503	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035		mg P/L	P373908	
2134511	EPA 8321B	2,4-D	0.0037	I	ug/L	P373854	
		Acesulfame K**	0.10	UJ	ug/L	P373843	SUR
		AMPA**	0.10	UJ	ug/L	P373843	SUR
		Sucralose**	0.17	I	ug/L	P373843	MS
		Acetaminophen**	0.028	I	ug/L	P373854	
		Acetamiprid**	0.0020	U	ug/L	P373854	
		Endothall**	0.25	UJ	ug/L	P373843	SUR
		Glufosinate**	0.10	UJ	ug/L	P373843	SUR
		Glyphosate**	0.10	UJ	ug/L	P373843	MS, SUR
		Afidopyropen**	0.0020	UJ	ug/L	P373854	
		Bentazon	0.0046		ug/L	P373854	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P373854	
		Carbamazepine**	0.0010	I	ug/L	P373854	
		Clothianidin**	0.0020	U	ug/L	P373854	
		Dinotefuran**	0.0020	U	ug/L	P373854	
		Diuron	0.083		ug/L	P373854	
		Fenuron	0.016	U	ug/L	P373854	
		Fluridone**	0.0033		ug/L	P373854	
		Imazapyr**	0.11		ug/L	P373854	
		Hydrocodone**	0.0020	U	ug/L	P373854	
		Ibuprofen**	0.020	U	ug/L	P373854	
		Imidacloprid	0.0056	IJ	ug/L	P373854	MS
		Linuron	0.0040	U	ug/L	P373854	
		Mandestrobin**	0.0020	UJ	ug/L	P373854	
		MCP	0.0020	U	ug/L	P373854	
		Naproxen**	0.019	I	ug/L	P373854	
		Primidone**	0.0040	U	ug/L	P373854	
		Pyraclostrobin**	0.0020	U	ug/L	P373854	
		Thiamethoxam**	0.0020	U	ug/L	P373854	
		Tolfenpyrad**	0.0020	U	ug/L	P373854	
		Triclopyr**	0.0040	U	ug/L	P373854	
2134512	EPA 200.7 Rev. 4.4	Iron	960		ug/L	P374231	

Field ID: 20030792

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2134512	EPA 200.7 Rev. 4.4	Manganese	87		ug/L	P374231	
		Zinc	15	U	ug/L	P374231	
	EPA 200.8 Rev. 5.4	Aluminum	140	I	ug/L	P8493	
		Antimony	0.20	U	ug/L	P8493	
		Arsenic	3.88		ug/L	P8493	
		Cadmium	0.088	I	ug/L	P8493	
		Chromium	1.6	U	ug/L	P374231	
		Copper	2.0	I	ug/L	P8493	
		Lead	1.9		ug/L	P8493	
		Nickel	2.0	U	ug/L	P8493	
		Selenium	0.80	U	ug/L	P8493	
		Silver	0.040	U	ug/L	P8493	
		Thallium	0.40	U	ug/L	P8493	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 8321B: J - second source check standards for some analytes were not available for analysis. MS accuracy for diuron and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: Results confirmed in sample duplicate. Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 8321B: MDL elevated due to matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373886

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374231

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374231

Component	Result	Code	Units
Chromium	0.40	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P8493

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
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
Batch ID: P374769

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374188

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374218

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374041

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374138

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373908

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

Reference Method: EPA 8321B
Batch ID: P373843

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: P373854

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
Thiamethoxam	0.0020	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P373854

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

Reference Method: SM 2320 B-97
Batch ID: P373988

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

Reference Method: SM 2540 D-97
Batch ID: P374154

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374117

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: P374231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	96.9		P	85 - 115
Manganese	102		P	85 - 115
Zinc	99.7		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	98.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P8493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	97.6		P	85 - 115
Arsenic	98.1		P	85 - 115
Cadmium	95.0		P	85 - 115
Copper	98.3		P	85 - 115
Lead	93.0		P	85 - 115
Nickel	97.9		P	85 - 115
Selenium	95.7		P	85 - 115
Silver	93.9		P	85 - 115
Thallium	100		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P374769

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374218

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P374138

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P373908

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

Reference Method: EPA 8321B
 Batch ID: P373843

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	69.6		P	40 - 150
AMPA	105		P	40 - 150
Endothall	94.8		P	40 - 150
Glufosinate	105		P	40 - 150
Glyphosate	112		P	40 - 140
Sucralose	102		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P373854

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	120		P	40 - 160
Acetaminophen	76.8		P	30 - 160
Acetamiprid	90.2		P	40 - 160
Afidopyropen	100		P	40 - 160
Bentazon	95.5		P	30 - 160
Benzovindiflupyr	88.8		P	40 - 160
Carbamazepine	96.8		P	40 - 160
Clothianidin	88.2		P	40 - 160
Dinotefuran	89.2		P	40 - 160
Diuron	98.2		P	40 - 160
Fenuron	95.5		P	40 - 160
Fluridone	96.3		P	40 - 160
Hydrocodone	80.8		P	40 - 160
Ibuprofen	99.9		P	30 - 160
Imazapyr	72.2		P	40 - 160
Imidacloprid	99.8		P	40 - 160
Linuron	78.8		P	40 - 160
Mandestrobin	89.7		P	40 - 160
MCPP	139		P	40 - 160
Naproxen	71.6		P	40 - 160
Primidone	94.9		P	40 - 160
Pyraclostrobin	84.3		P	30 - 160
Thiamethoxam	91.4		P	40 - 160
Tolfenpyrad	60.8		P	40 - 160
Triclopyr	94.4		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P373988

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374117

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134512	Iron	89.1	86.4	P/P	70 - 130
2134512	Manganese	94.7	92.6	P/P	70 - 130
2134512	Zinc	101	98.6	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134512	Chromium	96.8	97.2	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P8493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134512	Aluminum	107	111	P/P	70 - 130
2134512	Antimony	103	103	P/P	70 - 130
2134512	Arsenic	107	108	P/P	70 - 130
2134512	Cadmium	93.7	91.0	P/P	70 - 130
2134512	Copper	95.3	97.0	P/P	70 - 130
2134512	Lead	98.7	98.8	P/P	70 - 130
2134512	Nickel	92.1	93.0	P/P	70 - 130
2134512	Selenium	99.3	100	P/P	70 - 130
2134512	Silver	90.9	90.6	P/P	70 - 130
2134512	Thallium	108	109	P/P	70 - 130

Reference Method: EPA 300.0
Batch ID: P374769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2135473	Bromide	97.8	99.8	P/P	90 - 110
2135668	Bromide	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134246	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P374218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134568	Kjeldahl Nitrogen	110	98.8	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134087	NO2NO3-N	105	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P374138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134254	Total-P	92.8	91.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134503	O-Phosphate-P	95.2	95.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P373843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134483	Acesulfame K	96.7	100	P/P	40 - 150
2134483	AMPA	144	138	P/P	40 - 150
2134483	Endothall	97.7	106	P/P	40 - 150
2134483	Glufosinate	83.3	99.9	P/P	40 - 150
2134483	Glyphosate	231	265	F/F	40 - 140
2134483	Sucralose	32.8	34.8	F/F	40 - 150

Reference Method: EPA 8321B
Batch ID: P373854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134511	2,4-D	129	130	P/P	40 - 160
2134511	Acetaminophen	76.0	80.1	P/P	30 - 160
2134511	Acetamiprid	107	119	P/P	40 - 160
2134511	Afidopyropen	118	134	P/P	40 - 160
2134511	Bentazon	70.7	62.9	P/P	30 - 160
2134511	Benzovindiflupyr	98.8	100	P/P	40 - 160
2134511	Carbamazepine	95.7	96.5	P/P	40 - 160
2134511	Clothianidin	97.3	97.9	P/P	40 - 160
2134511	Dinotefuran	117	123	P/P	40 - 160
2134511	Fenuron	94.5	94.7	P/P	40 - 160
2134511	Fluridone	94.3	93.3	P/P	40 - 160
2134511	Hydrocodone	96.2	100	P/P	40 - 160
2134511	Ibuprofen	95.1	98.8	P/P	30 - 160
2134511	Imidacloprid	173	188	F/F	40 - 160
2134511	Linuron	78.7	83.5	P/P	40 - 160
2134511	Mandestrobin	93.8	96.8	P/P	40 - 160
2134511	MCP	142	141	P/P	40 - 160
2134511	Naproxen	78.8	78.5	P/P	40 - 160
2134511	Primidone	113	111	P/P	40 - 160
2134511	Pyraclostrobin	89.2	91.1	P/P	30 - 160
2134511	Thiamethoxam	140	147	P/P	40 - 160
2134511	Tolfenpyrad	62.7	66.1	P/P	40 - 160
2134511	Triclopyr	98.2	95.3	P/P	30 - 160

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2131834	Fluoride	99.8	97.0	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P374117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134502	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134464	Turbidity	4.45	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134512	Iron	2.42	Spike	P	0 - 20
2134512	Manganese	1.57	Spike	P	0 - 20
2134512	Zinc	2.14	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134512	Chromium	0.406	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P8493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134512	Aluminum	3.54	Spike	P	0 - 20
2134512	Antimony	0.114	Spike	P	0 - 20
2134512	Arsenic	0.944	Spike	P	0 - 20
2134512	Cadmium	2.84	Spike	P	0 - 20
2134512	Copper	1.69	Spike	P	0 - 20
2134512	Lead	0.0709	Spike	P	0 - 20
2134512	Nickel	0.976	Spike	P	0 - 20
2134512	Selenium	0.868	Spike	P	0 - 20
2134512	Silver	0.345	Spike	P	0 - 20
2134512	Thallium	1.33	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P374769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2135473	Bromide	1.96	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P374188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134246	Ammonia-N	0.0126	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P374218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134568	Kjeldahl Nitrogen	7.41	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P374041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134087	NO2NO3-N	0.434	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P374138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134254	Total-P	1.72	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P373908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134503	O-Phosphate-P	0.153	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P373843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134483	Acesulfame K	3.33	Spike	P	0 - 30
2134483	AMPA	2.14	Spike	P	0 - 30
2134483	Endothall	7.96	Spike	P	0 - 30
2134483	Glufosinate	18.2	Spike	P	0 - 30
2134483	Glyphosate	7.84	Spike	P	0 - 30
2134483	Sucralose	3.81	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P373854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134511	2,4-D	0.425	Spike	P	0 - 30
2134511	Acetaminophen	3.64	Spike	P	0 - 30
2134511	Acetamiprid	10.6	Spike	P	0 - 30
2134511	Afidopyropen	12.3	Spike	P	0 - 30
2134511	Bentazon	8.61	Spike	P	0 - 30
2134511	Benzovindiflupyr	1.62	Spike	P	0 - 30
2134511	Carbamazepine	0.716	Spike	P	0 - 30
2134511	Clothianidin	0.606	Spike	P	0 - 30
2134511	Dinotefuran	5.50	Spike	P	0 - 30
2134511	Diuron	0.311	Spike	P	0 - 30
2134511	Fenuron	0.192	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P373854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134511	Fluridone	0.891	Spike	P	0 - 30
2134511	Hydrocodone	3.97	Spike	P	0 - 30
2134511	Ibuprofen	3.79	Spike	P	0 - 30
2134511	Imazapyr	2.96	Spike	P	0 - 30
2134511	Imidacloprid	7.85	Spike	P	0 - 30
2134511	Linuron	5.95	Spike	P	0 - 30
2134511	Mandestrobin	3.11	Spike	P	0 - 30
2134511	MCP	0.405	Spike	P	0 - 30
2134511	Naproxen	0.364	Spike	P	0 - 30
2134511	Primidone	2.15	Spike	P	0 - 30
2134511	Pyraclostrobin	2.11	Spike	P	0 - 30
2134511	Thiamethoxam	5.09	Spike	P	0 - 30
2134511	Tolfenpyrad	5.38	Spike	P	0 - 30
2134511	Triclopyr	2.99	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P373988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133458	Total Alkalinity	0.351	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P373994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2131834	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P374117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134502	Organic Carbon	0.159	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2134511
Field Sample ID: 20030792

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	129	P	30 - 160
EPA 8321B	Acetaminophen-d4	74.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.2	P	30 - 160
EPA 8321B	Diuron-d6	87.9	P	30 - 160
EPA 8321B	Endothall-d6	258	F	30 - 160
EPA 8321B	Endothall-d6	258	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	13.5	F	30 - 160
EPA 8321B	Glyphosate 13C 15N	13.5	F	30 - 160
EPA 8321B	Ibuprofen-d3	101	P	30 - 160
EPA 8321B	Primidone-d5	98.6	P	30 - 160
EPA 8321B	Sucralose-d6	35.1	P	30 - 160
EPA 8321B	Sucralose-d6	35.1	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95558

Included Lab Sample IDs: 2134501

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95574

Included Lab Sample IDs: 2134503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	99.3	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95617

Included Lab Sample IDs: 2134501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95617

Included Lab Sample IDs: 2134501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A95629

Included Lab Sample IDs: 2134511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	87.3	94.5	P/P	50 - 150
Acetaminophen	106	105	P/P	60 - 160
Acetamiprid	111	110	P/P	50 - 150
Afidopyropen	104	110	P/P	50 - 150
Bentazon	103	98.7	P/P	50 - 160
Benzovindiflupyr	107	109	P/P	50 - 150
Carbamazepine	106	110	P/P	60 - 150
Clothianidin	95.7	104	P/P	60 - 150
Dinotefuran	106	101	P/P	50 - 150
Diuron	111	106	P/P	60 - 150
Fenuron	110	110	P/P	60 - 150
Fluridone	111	117	P/P	60 - 160
Hydrocodone	108	105	P/P	60 - 150
Ibuprofen	90.1	89.3	P/P	50 - 160
Imazapyr	81.9	73.7	P/P	50 - 150
Imidacloprid	100	99.9	P/P	60 - 150
Linuron	105	101	P/P	60 - 150
Mandestrobin	111	111	P/P	50 - 150
MCPP	95.0	99.7	P/P	50 - 150
Naproxen	79.7	81.3	P/P	50 - 160
Primidone	96.5	98.4	P/P	60 - 150
Pyraclostrobin	96.8	97.9	P/P	60 - 150
Thiamethoxam	100	103	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A95629
Included Lab Sample IDs: 2134511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tolfenpyrad	107	102	P/P	60 - 150
Triclopyr	78.7	85.2	P/P	50 - 150

Reference Method: EPA 8321B
Run ID: A95640
Included Lab Sample IDs: 2134511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	102	72.9	P/P	60 - 160
Glufosinate	103	72.6	P/P	60 - 160
Glyphosate	101	79.9	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A95643
Included Lab Sample IDs: 2134502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A95655
Included Lab Sample IDs: 2134511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	71.9	62.5	P/P	60 - 160
Endothall	108	88.0	P/P	60 - 160

Reference Method: SM 5310 B-00
Run ID: A95686
Included Lab Sample IDs: 2134502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	106	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A95718
Included Lab Sample IDs: 2134502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A95736
Included Lab Sample IDs: 2134502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.9	97.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A95766
 Included Lab Sample IDs: 2134511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	95.3	113	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A95781
 Included Lab Sample IDs: 2134502

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.2	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
 Run ID: A95796
 Included Lab Sample IDs: 2134512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.2	99.1	P/P	90 - 110
Manganese	105	104	P/P	90 - 110
Zinc	100	99.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A95873
 Included Lab Sample IDs: 2134512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	106	107	P/P	90 - 110
Antimony	99.3	98.2	P/P	90 - 110
Arsenic	103	104	P/P	90 - 110
Cadmium	100	98.7	P/P	90 - 110
Copper	105	106	P/P	90 - 110
Lead	95.1	95.4	P/P	90 - 110
Nickel	102	103	P/P	90 - 110
Selenium	99.0	99.6	P/P	90 - 110
Silver	98.7	98.1	P/P	90 - 110
Thallium	95.7	95.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
 Run ID: A95926
 Included Lab Sample IDs: 2134512

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	96.6	97.1	P/P	90 - 110

Reference Method: EPA 300.0
 Run ID: A95940
 Included Lab Sample IDs: 2134501

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	104	106	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						4.45	
EPA 200.7 Rev. 4.4	Iron	96.9		89.1	86.4			2.42
	Manganese	102		94.7	92.6			1.57
	Zinc	99.7		101	98.6			2.14
EPA 200.8 Rev. 5.4	Aluminum	102		107	111			3.54
	Antimony	97.6		103	103			0.114
	Arsenic	98.1		107	108			0.944
	Cadmium	95.0		93.7	91.0			2.84
	Chromium	98.1		96.8	97.2			0.406
	Copper	98.3		95.3	97.0			1.69
	Lead	93.0		98.7	98.8			0.0709
	Nickel	97.9		92.1	93.0			0.976
	Selenium	95.7		99.3	100			0.868
	Silver	93.9		90.9	90.6			0.345
	Thallium	100		108	109			1.33
EPA 300.0	Bromide	101		97.8	99.8	97.3		1.96
EPA 350.1 Rev. 2.0	Ammonia-N	98.8		102	102			0.0126
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104		110	98.8			7.41
EPA 353.2 Rev. 2.0	NO2NO3-N	104		105	105			0.434
EPA 365.1 Rev. 2.0	Total-P	99.6		92.8	91.2			1.72
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102		95.2	95.4			0.153
EPA 8321B	2,4-D	120		129	130			0.425
	Acesulfame K	69.6		96.7	100			3.33
	Acetaminophen	76.8		76.0	80.1			3.64
	Acetamiprid	90.2		107	119			10.6
	Afidopyropen	100		118	134			12.3
	AMPA	105		144	138			2.14
	Bentazon	95.5		70.7	62.9			8.61
	Benzovindiflupyr	88.8		98.8	100			1.62
	Carbamazepine	96.8		95.7	96.5			0.716
	Clothianidin	88.2		97.3	97.9			0.606
	Dinotefuran	89.2		117	123			5.50
	Diuron	98.2						0.311
	Endothall	94.8		97.7	106			7.96
	Fenuron	95.5		94.5	94.7			0.192
	Fluridone	96.3		94.3	93.3			0.891
	Glufosinate	105		83.3	99.9			18.2
	Glyphosate	112		231	265			7.84
	Hydrocodone	80.8		96.2	100			3.97
	Ibuprofen	99.9		95.1	98.8			3.79
	Imazapyr	72.2						2.96
	Imidacloprid	99.8		173	188			7.85
	Linuron	78.8		78.7	83.5			5.95
	Mandestrobin	89.7		93.8	96.8			3.11
	MCPP	139		142	141			0.405
	Naproxen	71.6		78.8	78.5			0.364
	Primidone	94.9		113	111			2.15
	Pyraclostrobin	84.3		89.2	91.1			2.11
	Sucralose	102		32.8	34.8			3.81
	Thiamethoxam	91.4		140	147			5.09
	Tolfenpyrad	60.8		62.7	66.1			5.38
	Triclopyr	94.4		98.2	95.3			2.99
SM 2320 B-97	Total Alkalinity	99.0					0.351	
SM 4500 F-C-97	Fluoride	96.5		99.8	97.0			1.48

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision	MS
			LCS	SMP	
SM 5310 B-00	Organic Carbon	102	103 103		0.159

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2134501
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2134512
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2134512
EPA 300.0 / E31780	Bromide in aqueous matrices	2134501
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2134502
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2134502
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2134502
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2134502
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2134503
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2134511
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2134511
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2134501
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2134501
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2134501
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2134502

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	11/07/2019			11/07/2019 14:15	Rosalyn Ballman	2134501
EPA 200.7 Rev. 4.4	11/07/2019	11/14/2019 15:00	Elliott D. Healy	11/18/2019 16:36	Betina Topolski	2134512
EPA 200.8 Rev. 5.4	11/07/2019	11/14/2019 15:00	Elliott D. Healy	11/20/2019 21:37	Justin Cutchin	2134512
	11/07/2019	11/14/2019 15:00	Elliott D. Healy	11/20/2019 22:45	Justin Cutchin	2134512
	11/07/2019	11/14/2019 15:00	Elliott D. Healy	11/22/2019 23:39	Justin Cutchin	2134512
EPA 300.0	11/07/2019			11/21/2019 00:17	Lipi Saha	2134501
EPA 350.1 Rev. 2.0	11/07/2019			11/13/2019 13:59	Ping Hua	2134502
EPA 351.2 Rev. 2.0	11/07/2019	11/14/2019 12:47	Sima Feizi	11/15/2019 16:10	Virginia P. Brown	2134502
EPA 353.2 Rev. 2.0	11/07/2019			11/12/2019 12:40	Beverly Y. Sanders	2134502
EPA 365.1 Rev. 2.0	11/07/2019	11/13/2019 14:24	Yen Ta	11/14/2019 17:10	Benjamin T. Nordmann	2134502
EPA 365.1 Rev. 2.0 dissolved	11/07/2019			11/07/2019 15:27	Samantha Davila	2134503
EPA 8321B	11/07/2019	11/07/2019 14:30	Rebecca Ware	11/08/2019 02:29	Rebecca Ware	2134511
	11/07/2019	11/07/2019 14:30	Rebecca Ware	11/09/2019 00:02	Rebecca Ware	2134511
	11/07/2019	11/07/2019 14:30	Rebecca Ware	11/14/2019 13:33	Rebecca Ware	2134511
	11/07/2019	11/08/2019 11:00	Hoor Shaik	11/10/2019 16:22	Juyoung Kim	2134511
SM 2320 B-97	11/07/2019			11/08/2019 23:42	Dale L. Simmons	2134501
SM 2540 D-97	11/07/2019			11/08/2019 15:36	Rosalyn Ballman	2134501
SM 4500 F-C-97	11/07/2019			11/08/2019 22:52	Dale L. Simmons	2134501
SM 5310 B-00	11/07/2019			11/13/2019 05:05	Madeline Funaro	2134502