Chemical Analysis Report

NE-DIST-2018-04-10-01

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

Event Description: **SCI Reference**
Request ID: **RQ-2018-02-12-39**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 07-MAY-2018 14:54

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 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: Black Cr. North Prong 1/4 Above Big Branch **Collection Date/Time: 04/09/2018 10:35**

Field ID: 20030437 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983217	EPA 180.1 Rev. 2.0	Turbidity	6.3	A	NTU	P343152	
	EPA 300.0	Bromide**	0.035	I	mg Br/L	P343503	
	EPA 300.0 Rev. 2.1	Chloride	9.5		mg Cl/L	P343434	
		Sulfate	5.2		mg SO4/L	P343437	
	SM 2120 B	Color (true)	170		PCU	P343126	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P343804	
	SM 2540 C-97	TDS	75		mg/L	P343466	
	SM 2540 D-97	TSS	4	I	mg/L	P343862	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P343807	
1983218	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P343557	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P343264	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.080		mg N/L	P343565	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P343478	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P343397	
1983219	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023		mg P/L	P343138	
1983224	EPA 8321B	2,4-D	0.0020	U	ug/L	P343184	
		Bentazon	8.0E-04	U	ug/L	P343184	
		MCPP	0.0020	U	ug/L	P343184	
		Triclopyr**	0.0040	U	ug/L	P343184	
		Imidacloprid	0.0020	UJ	ug/L	P343184	MS
		Diuron	0.0020	U	ug/L	P343184	
		Pyraclostrobin**	0.0020	U	ug/L	P343184	
		Primidone**	0.0040	U	ug/L	P343184	
		Linuron	0.0040	U	ug/L	P343184	
		Acetaminophen**	0.0080	U	ug/L	P343184	
		Fenuron	0.016	U	ug/L	P343184	
		Imazapyr**	0.012	I	ug/L	P343184	
		Carbamazepine**	4.0E-04	U	ug/L	P343184	
		Fluridone**	8.0E-04	U	ug/L	P343184	
		Hydrocodone**	8.0E-04	U	ug/L	P343184	
		Sucralose**	0.10	U	ug/L	P343078	
1983225	EPA 200.7 Rev. 4.4	Calcium	9.76		mg/L	P343227	
		Magnesium	2.09		mg/L	P343227	
		Potassium	0.49	I	mg/L	P343227	
		Sodium	5.7		mg/L	P343227	

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: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report
Method Blank Results

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343152

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343227

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0
Batch ID: P343503

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343434

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343437

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343557

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343264

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343565

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343478

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: P343138

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

Reference Method: EPA 8321B
Batch ID: P343078

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P343184

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P343126

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343804

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

Reference Method: SM 2540 C-97
Batch ID: P343466

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343862

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P343807

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343397

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: P343227

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	96.2		P	85 - 115
Magnesium	98.5		P	85 - 115
Potassium	94.7		P	85 - 115
Sodium	93.9		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P343503

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343434

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: P343437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343557

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343264

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343565

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343478

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343138

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

Reference Method: EPA 8321B
Batch ID: P343078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	114		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.5		P	40 - 150
Acetaminophen	91.0		P	30 - 150
Bentazon	68.4		P	30 - 150
Carbamazepine	80.4		P	40 - 150
Diuron	63.8		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	61.9		P	40 - 150
Hydrocodone	103		P	40 - 150
Imazapyr	65.5		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	72.0		P	40 - 150
MCPP	64.0		P	40 - 150
Primidone	106		P	40 - 150
Pyraclostrobin	69.2		P	40 - 150
Triclopyr	63.4		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P343804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343807

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.1		P	91 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P343397

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343227

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983249	Calcium	84.1	84.6	P/P	80 - 120
1983249	Magnesium	86.5	86.6	P/P	80 - 120
1983249	Potassium	85.2	84.5	P/P	80 - 120
1983249	Sodium	84.7	83.4	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P343503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983217	Bromide	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983244	Chloride	101		P	90 - 110
1983293	Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983244	Sulfate	98.3		P	90 - 110
1983293	Sulfate	93.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983212	Ammonia-N	93.9	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983200	Kjeldahl Nitrogen	91.9	91.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983212	NO2NO3-N	102	102	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983296	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343138

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983219	O-Phosphate-P	96.9	96.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P343078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981837	Sucralose	91.5	86.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983224	2,4-D	130	136	P/P	40 - 150
1983224	Acetaminophen	122	128	P/P	30 - 150
1983224	Bentazon	41.1	43.3	P/P	30 - 150
1983224	Carbamazepine	103	103	P/P	40 - 150
1983224	Diuron	79.4	73.3	P/P	40 - 150
1983224	Fenuron	111	108	P/P	40 - 150
1983224	Fluridone	61.8	70.7	P/P	40 - 150
1983224	Hydrocodone	147	141	P/P	40 - 150
1983224	Imazapyr	89.8	74.8	P/P	40 - 150
1983224	Imidacloprid	248	245	F/F	40 - 160
1983224	Linuron	89.4	88.5	P/P	40 - 150
1983224	MCPP	96.0	99.7	P/P	40 - 150
1983224	Primidone	130	122	P/P	40 - 150
1983224	Pyraclostrobin	75.5	75.8	P/P	40 - 150
1983224	Triclopyr	92.0	96.4	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P343807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982999	Fluoride	102	102	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983001	Organic Carbon	97.6	96.3	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983217	Turbidity	6.02	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P343227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983249	Calcium	0.286	Spike	P	0 - 20
1983249	Magnesium	0.0513	Spike	P	0 - 20
1983249	Potassium	0.753	Spike	P	0 - 20
1983249	Sodium	1.42	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P343503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983217	Bromide	0.782	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983244	Chloride	0.573	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983244	Sulfate	0.423	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983212	Ammonia-N	1.56	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983200	Kjeldahl Nitrogen	0.793	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983212	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983296	Total-P	0.163	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983219	O-Phosphate-P	0.251	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P343078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981837	Sucralose	5.76	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983224	2,4-D	4.71	Spike	P	0 - 30
1983224	Acetaminophen	4.60	Spike	P	0 - 30
1983224	Bentazon	5.22	Spike	P	0 - 30
1983224	Carbamazepine	0.542	Spike	P	0 - 30
1983224	Diuron	8.02	Spike	P	0 - 30
1983224	Fenuron	2.41	Spike	P	0 - 30
1983224	Fluridone	13.5	Spike	P	0 - 30
1983224	Hydrocodone	4.30	Spike	P	0 - 30
1983224	Imazapyr	15.4	Spike	P	0 - 30
1983224	Imidacloprid	1.39	Spike	P	0 - 30
1983224	Linuron	0.996	Spike	P	0 - 30
1983224	MCPP	3.82	Spike	P	0 - 30
1983224	Primidone	6.33	Spike	P	0 - 30
1983224	Pyraclostrobin	0.414	Spike	P	0 - 30
1983224	Triclopyr	4.67	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P343126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983211	Color (true)	1.60	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P343804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982999	Total Alkalinity	1.09	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983199	TDS	2.24	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P343807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982999	Fluoride	0.479	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983001	Organic Carbon	1.17	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Surrogates

Lab Sample ID: 1983224
Field Sample ID: 20030437

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	123	P	30 - 160
EPA 8321B	2,4-D-d3	123	P	30 - 160
EPA 8321B	Acetaminophen-d4	110	P	30 - 160
EPA 8321B	Acetaminophen-d4	110	P	30 - 160
EPA 8321B	Carbamazepine-d10	131	P	30 - 160
EPA 8321B	Carbamazepine-d10	131	P	30 - 160
EPA 8321B	Diuron-d6	94.5	P	30 - 160
EPA 8321B	Diuron-d6	94.5	P	30 - 160
EPA 8321B	Primidone-d5	138	P	30 - 160
EPA 8321B	Primidone-d5	138	P	30 - 160
EPA 8321B	Sucralose-d6	50.8	P	40 - 160
EPA 8321B	Sucralose-d6	50.8	P	40 - 160

Quality Assurance Report
Calibration Verification

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A83147
Included Lab Sample IDs: 1983217

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83150
Included Lab Sample IDs: 1983219

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83154
Included Lab Sample IDs: 1983217

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A83189
Included Lab Sample IDs: 1983225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	99.9	99.7	P/P	90 - 110
Sodium	99.9	99.8	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A83192
Included Lab Sample IDs: 1983224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	103	108	P/P	60 - 130

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83234
Included Lab Sample IDs: 1983217

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.6	100	P/P	90 - 110
Sulfate	100	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83237
Included Lab Sample IDs: 1983218

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	97.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83263
Included Lab Sample IDs: 1983218

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

Reference Method: EPA 300.0
Run ID: A83272
Included Lab Sample IDs: 1983217

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.7	96.8	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A83283
Included Lab Sample IDs: 1983224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.6	101	P/P	50 - 150
Acetaminophen	103	106	P/P	60 - 150
Bentazon	79.3	83.8	P/P	50 - 150
Carbamazepine	98.5	103	P/P	60 - 150
Diuron	107	105	P/P	60 - 150
Fenuron	113	118	P/P	60 - 150
Fluridone	106	102	P/P	60 - 160
Hydrocodone	111	109	P/P	60 - 150
Imazapyr	84.4	87.7	P/P	50 - 150
Imidacloprid	109	104	P/P	60 - 150
Linuron	113	112	P/P	60 - 150
MCPP	94.2	106	P/P	50 - 150
Primidone	120	117	P/P	60 - 150
Pyraclostrobin	107	105	P/P	60 - 150
Triclopyr	96.4	98.1	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83285
Included Lab Sample IDs: 1983218

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83287
Included Lab Sample IDs: 1983218

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83340
Included Lab Sample IDs: 1983218

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A83368
Included Lab Sample IDs: 1983217

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.8	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83368
Included Lab Sample IDs: 1983217

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	98.1	P/P	90 - 110

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					6.02	
EPA 200.7 Rev. 4.4	Calcium	96.2	84.1	84.6			0.286
	Magnesium	98.5	86.5	86.6			0.0513
	Potassium	94.7	85.2	84.5			0.753
	Sodium	93.9	84.7	83.4			1.42
EPA 300.0	Bromide	103	100	101			0.782
EPA 300.0 Rev. 2.1	Chloride	98.9	101	96.3		0.573	
	Sulfate	98.0	98.3	93.7		0.423	
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	93.9	95.8			1.56
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	91.9	91.0			0.793
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	107	101	101			0.163
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.9	96.6			0.251
EPA 8321B	2,4-D	78.5	130	136			4.71
	Acetaminophen	91.0	122	128			4.60
	Bentazon	68.4	41.1	43.3			5.22
	Carbamazepine	80.4	103	103			0.542
	Diuron	63.8	79.4	73.3			8.02
	Fenuron	110	111	108			2.41
	Fluridone	61.9	61.8	70.7			13.5
	Hydrocodone	103	147	141			4.30
	Imazapyr	65.5	89.8	74.8			15.4
	Imidacloprid	104	248	245			1.39
	Linuron	72.0	89.4	88.5			0.996
	MCPP	64.0	96.0	99.7			3.82
	Primidone	106	130	122			6.33
	Pyraclostrobin	69.2	75.5	75.8			0.414
	Sucralose	114	91.5	86.4			5.76
	Triclopyr	63.4	92.0	96.4			4.67
SM 2120 B	Color (true)					1.60	
SM 2320 B-97	Total Alkalinity	100				1.09	
SM 2540 C-97	TDS					2.24	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 4500 F-C-97	Fluoride	95.1	102	102			0.479
SM 5310 B-00	Organic Carbon	97.6	97.6	96.3			1.17

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1983217
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1983225
EPA 300.0 / E31780	Bromide in aqueous matrices	1983217
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1983217
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1983217
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1983218
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1983218
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1983218
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1983218
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1983219
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1983224
SM 2120 B / E31780	True Color measured at 450 nm	1983217
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1983217
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1983217
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1983217
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1983217
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1983218

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	04/10/2018			04/10/2018 18:04	William L. Brown IV	1983217
EPA 200.7 Rev. 4.4	04/10/2018	04/11/2018 18:30	Elliott D. Healy	04/12/2018 11:22	Betina Topolski	1983225
EPA 300.0	04/10/2018			04/16/2018 21:10	Julia Storbeck	1983217
EPA 300.0 Rev. 2.1	04/10/2018			04/14/2018 00:04	Lipi Saha	1983217
EPA 350.1 Rev. 2.0	04/10/2018			04/16/2018 13:53	Ping Hua	1983218
EPA 351.2 Rev. 2.0	04/10/2018	04/12/2018 09:00	Adrian Shelby	04/13/2018 14:53	Joseph Suarez	1983218
EPA 353.2 Rev. 2.0	04/10/2018			04/17/2018 14:54	Lauren Bottorf	1983218
EPA 365.1 Rev. 2.0	04/10/2018	04/16/2018 13:16	Sima Feizi	04/19/2018 11:22	Beverly Y. Sanders	1983218
EPA 365.1 Rev. 2.0 dissolved	04/10/2018			04/10/2018 15:16	Megan Treadwell	1983219
EPA 8321B	04/10/2018	04/10/2018 13:00	Julie Michelle Frank	04/10/2018 17:00	Julie Michelle Frank	1983224
	04/10/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 07:10	Julie Michelle Frank	1983224
	04/10/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 20:25	Julie Michelle Frank	1983224
SM 2120 B	04/10/2018			04/10/2018 16:07	Tanya Welborn	1983217
SM 2320 B-97	04/10/2018			04/18/2018 22:03	Dale L. Simmons	1983217
SM 2540 C-97	04/10/2018			04/11/2018 15:02	Yijie Li	1983217
SM 2540 D-97	04/10/2018			04/11/2018 15:02	Yijie Li	1983217
SM 4500 F-C-97	04/10/2018			04/18/2018 22:03	Dale L. Simmons	1983217
SM 5310 B-00	04/10/2018			04/13/2018 08:18	Julia Storbeck	1983218