

Chemical Analysis Report

CEN-DIST-2018-04-26-01

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

Event Description: **Chain / Marie / Gleason**

Request ID: **RQ-2018-04-23-55**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

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Certified by: Colin Wright, Program Administrator

Date Certified: 15-MAY-2018 12:51



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: Lake Marie @ Center (2951)

Collection Date/Time: 04/25/2018 10:43

Field ID: G2CE0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987809	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P344153	
	EPA 300.0 Rev. 2.1	Chloride	60		mg Cl/L	P344749	
		Sulfate	5.1		mg SO4/L	P344752	
	SM 2120 B	Color (true)	34	A	PCU	P344128	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P344743	
	SM 2540 C-97	TDS	179		mg/L	P344814	
	SM 2540 D-97	TSS	2	U	mg/L	P344598	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P344747	
1987810	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P344625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P344305	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344330	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P344323	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P344687	
1987811	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344197	
1987822	EPA 8321B	2,4-D	0.0048	I	ug/L	P344034	
		Bentazon	8.0E-04	U	ug/L	P344034	
		MCP	0.0020	U	ug/L	P344034	
		Triclopyr**	0.0040	U	ug/L	P344034	
		Imidacloprid	0.0022	I	ug/L	P344034	MS
		Diuron	0.0020	U	ug/L	P344034	
		Pyraclostrobin**	0.0020	U	ug/L	P344034	
		Primidone**	0.0040	U	ug/L	P344034	
		Linuron	0.0040	U	ug/L	P344034	
		Acetaminophen**	0.0080	U	ug/L	P344034	
		Fenuron	0.016	U	ug/L	P344034	
		Imazapyr**	0.024		ug/L	P344034	
		Carbamazepine**	4.0E-04	U	ug/L	P344034	
		Fluridone**	0.30		ug/L	P344034	
		Hydrocodone**	8.0E-04	U	ug/L	P344034	
		Sucralose**	0.93		ug/L	P344028	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Lake Gleason @ Center (2893G)

Collection Date/Time: 04/25/2018 11:18

Field ID: G2CE0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987812	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P344153	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P344749	
		Sulfate	3.8		mg SO4/L	P344752	
	SM 2120 B	Color (true)	29		PCU	P344128	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P344743	

Field ID: G2CE0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1987812	SM 2540 C-97	TDS	105		mg/L	P344814	
	SM 2540 D-97	TSS	2	U	mg/L	P344598	
	SM 4500 F-C-97	Fluoride	0.082	I	mg F/L	P344747	
1987813	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P344625	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P344305	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P344330	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P344323	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P344687	
1987814	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P344197	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

SM 2540 D-97: 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: P344153

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P344749

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P344752

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P344625

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P344305

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P344330

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P344323

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P344197

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

Reference Method: EPA 8321B
 Batch ID: P344028

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: EPA 8321B
 Batch ID: P344034

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	0.030	I	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: P344128

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
 Batch ID: P344743

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

Reference Method: SM 2540 C-97
 Batch ID: P344814

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P344598

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P344747

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P344687

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344749

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344752

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344625

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344305

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344330

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344323

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P344323

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: P344197

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

Reference Method: EPA 8321B
 Batch ID: P344028

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	112		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P344034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	109		P	40 - 150
Acetaminophen	93.3		P	30 - 150
Bentazon	135		P	30 - 150
Carbamazepine	103		P	40 - 150
Diuron	91.0		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	91.5		P	40 - 150
Hydrocodone	116		P	40 - 150
Imazapyr	107		P	40 - 150
Imidacloprid	110		P	40 - 160
Linuron	91.5		P	40 - 150
MCPP	115		P	40 - 150
Primidone	88.5		P	40 - 150
Pyraclostrobin	92.4		P	40 - 150
Triclopyr	122		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P344743

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
 Batch ID: P344747

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P344687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P344749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987628	Chloride	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P344625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987633	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P344305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987541	Kjeldahl Nitrogen	106	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P344330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987810	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P344323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987813	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P344197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987811	O-Phosphate-P	97.0	97.2	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P344028

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987104	Sucralose	85.1	72.9	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P344034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987389	2,4-D	99.8	89.8	P/P	40 - 150
1987389	Acetaminophen	126	115	P/P	30 - 150
1987389	Bentazon	68.4	62.8	P/P	30 - 150
1987389	Carbamazepine	118	109	P/P	40 - 150
1987389	Diuron	96.8	88.3	P/P	40 - 150
1987389	Fenuron	114	104	P/P	40 - 150
1987389	Fluridone	94.9	88.0	P/P	40 - 150
1987389	Hydrocodone	149	134	P/P	40 - 150
1987389	Imazapyr	133	117	P/P	40 - 150
1987389	Imidacloprid	229	198	F/F	40 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P344034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987389	Linuron	104	95.7	P/P	40 - 150
1987389	MCP	78.3	80.0	P/P	40 - 150
1987389	Primidone	119	112	P/P	40 - 150
1987389	Pyraclostrobin	108	99.4	P/P	40 - 150
1987389	Triclopyr	87.0	86.4	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P344747

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1988073	Fluoride	96.4	97.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P344687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1987630	Organic Carbon	101	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P344153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987788	Turbidity	1.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987628	Chloride	0.133	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P344752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987628	Sulfate	0.0105	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P344625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987633	Ammonia-N	0.188	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P344305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987541	Kjeldahl Nitrogen	3.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P344330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987810	NO2NO3-N	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P344323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987813	Total-P	0.279	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P344197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987811	O-Phosphate-P	0.206	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P344028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987104	Sucralose	15.4	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P344034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987389	2,4-D	10.6	Spike	P	0 - 30
1987389	Acetaminophen	8.88	Spike	P	0 - 30
1987389	Bentazon	6.96	Spike	P	0 - 30
1987389	Carbamazepine	7.79	Spike	P	0 - 30
1987389	Diuron	9.17	Spike	P	0 - 30
1987389	Fenuron	9.62	Spike	P	0 - 30
1987389	Fluridone	7.59	Spike	P	0 - 30
1987389	Hydrocodone	10.9	Spike	P	0 - 30
1987389	Imazapyr	13.4	Spike	P	0 - 30
1987389	Imidacloprid	14.2	Spike	P	0 - 30
1987389	Linuron	8.47	Spike	P	0 - 30
1987389	MCP	2.08	Spike	P	0 - 30
1987389	Primidone	5.96	Spike	P	0 - 30
1987389	Pyraclostrobin	7.86	Spike	P	0 - 30
1987389	Triclopyr	0.626	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P344128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987809	Color (true)	0.0964	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P344743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988073	Total Alkalinity	0.0690	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P344814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987828	TDS	0.244	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P344747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1988073	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P344687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1987630	Organic Carbon	0.264	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: 1987822
Field Sample ID: G2CE0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	80.0	P	30 - 160
EPA 8321B	2,4-D-d3	80.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Carbamazepine-d10	93.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	93.9	P	30 - 160
EPA 8321B	Diuron-d6	77.0	P	30 - 160
EPA 8321B	Diuron-d6	77.0	P	30 - 160
EPA 8321B	Primidone-d5	99.8	P	30 - 160
EPA 8321B	Primidone-d5	99.8	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1987822
Field Sample ID: G2CE0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	102	P	40 - 160
EPA 8321B	Sucralose-d6	102	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A83481
Included Lab Sample IDs: 1987809, 1987812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	99.1	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83486
Included Lab Sample IDs: 1987809, 1987812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83498
Included Lab Sample IDs: 1987811, 1987814

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83549
Included Lab Sample IDs: 1987810, 1987813

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

Reference Method: EPA 8321B
Run ID: A83560
Included Lab Sample IDs: 1987822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	86.1	97.0	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83571
Included Lab Sample IDs: 1987810, 1987813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	90.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83631

Included Lab Sample IDs: 1987810, 1987813

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83650

Included Lab Sample IDs: 1987810, 1987813

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A83651

Included Lab Sample IDs: 1987809, 1987812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	103	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83673

Included Lab Sample IDs: 1987810, 1987813

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

Reference Method: SM 2320 B-97

Run ID: A83684

Included Lab Sample IDs: 1987809, 1987812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83684

Included Lab Sample IDs: 1987809, 1987812

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A83753

Included Lab Sample IDs: 1987822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	114	109	P/P	50 - 150
Bentazon	136	138	P/P	50 - 150
MCP	99.9	99.0	P/P	50 - 150
Triclopyr	113	109	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83769
Included Lab Sample IDs: 1987822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	107	109	P/P	60 - 150
Carbamazepine	108	107	P/P	60 - 150
Diuron	115	115	P/P	60 - 150
Fenuron	114	114	P/P	60 - 150
Fluridone	115	111	P/P	60 - 160
Hydrocodone	117	116	P/P	60 - 150
Imazapyr	112	112	P/P	50 - 150
Imidacloprid	108	107	P/P	60 - 150
Linuron	110	120	P/P	60 - 150
Primidone	110	96.7	P/P	60 - 150
Pyraclostrobin	113	113	P/P	60 - 150

* 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				1.52	
EPA 300.0 Rev. 2.1	Chloride	102	100		0.133	
	Sulfate	102			0.0105	
EPA 350.1 Rev. 2.0	Ammonia-N	102	102	102		0.188
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	106	101		3.25
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	102	101		1.47
EPA 365.1 Rev. 2.0	Total-P	107	105	105		0.279
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	97.0	97.2		0.206
EPA 8321B	2,4-D	109	99.8	89.8		10.6
	Acetaminophen	93.3	126	115		8.88
	Bentazon	135	68.4	62.8		6.96
	Carbamazepine	103	118	109		7.79
	Diuron	91.0	96.8	88.3		9.17
	Fenuron	110	114	104		9.62
	Fluridone	91.5	94.9	88.0		7.59
	Hydrocodone	116	149	134		10.9
	Imazapyr	107	133	117		13.4
	Imidacloprid	110	229	198		14.2
	Linuron	91.5	104	95.7		8.47
	MCP	115	78.3	80.0		2.08
	Primidone	88.5	119	112		5.96
	Pyraclostrobin	92.4	108	99.4		7.86
	Sucralose	112	85.1	72.9		15.4
	Triclopyr	122	87.0	86.4		0.626
SM 2120 B	Color (true)				0.0964	
SM 2320 B-97	Total Alkalinity	103			0.0690	
SM 2540 C-97	TDS				0.244	
SM 4500 F-C-97	Fluoride	97.1	96.4	97.0		0.480
SM 5310 B-00	Organic Carbon	98.7	101	101		0.264

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1987809, 1987812
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1987809, 1987812
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1987809, 1987812
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1987810, 1987813
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1987810, 1987813
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1987810, 1987813
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1987810, 1987813
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1987811, 1987814
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1987822
SM 2120 B / E31780	True Color measured at 450 nm	1987809, 1987812
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1987809, 1987812
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1987809, 1987812
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1987809, 1987812
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1987809, 1987812
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1987810, 1987813

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	04/26/2018			04/26/2018 17:23	William L. Brown IV	1987809, 1987812
EPA 300.0 Rev. 2.1	04/26/2018			05/04/2018 19:49	Lipi Saha	1987809
	04/26/2018			05/04/2018 20:00	Lipi Saha	1987812
EPA 350.1 Rev. 2.0	04/26/2018			05/03/2018 14:36	Ping Hua	1987810
	04/26/2018			05/03/2018 14:37	Ping Hua	1987813
EPA 351.2 Rev. 2.0	04/26/2018	04/30/2018 15:30	Adrian Shelby	05/01/2018 11:11	Joseph Suarez	1987810
	04/26/2018	04/30/2018 15:30	Adrian Shelby	05/01/2018 11:12	Joseph Suarez	1987813
EPA 353.2 Rev. 2.0	04/26/2018			04/30/2018 12:56	Lauren Bottorf	1987810
	04/26/2018			04/30/2018 12:57	Lauren Bottorf	1987813
EPA 365.1 Rev. 2.0	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:54	Beverly Y. Sanders	1987810
	04/26/2018	04/30/2018 13:15	Sima Feizi	05/02/2018 10:55	Beverly Y. Sanders	1987813
EPA 365.1 Rev. 2.0 dissolved	04/26/2018			04/26/2018 17:54	Megan Treadwell	1987811
	04/26/2018			04/26/2018 18:22	Megan Treadwell	1987814
EPA 8321B	04/26/2018	04/27/2018 12:34	Juyoung Kim	04/28/2018 02:42	Juyoung Kim	1987822
	04/26/2018	04/30/2018 10:00	Hoor Shaik	05/05/2018 06:27	Juyoung Kim	1987822
	04/26/2018	04/30/2018 10:00	Hoor Shaik	05/06/2018 05:40	Juyoung Kim	1987822
	04/26/2018	04/30/2018 10:00	Hoor Shaik	05/08/2018 08:53	Juyoung Kim	1987822
SM 2120 B	04/26/2018			04/26/2018 14:38	Tanya Welborn	1987809
	04/26/2018			04/26/2018 14:39	Tanya Welborn	1987812
SM 2320 B-97	04/26/2018			05/04/2018 04:54	Dale L. Simmons	1987809
	04/26/2018			05/04/2018 05:05	Dale L. Simmons	1987812
SM 2540 C-97	04/26/2018			04/27/2018 13:15	William L. Brown IV	1987809, 1987812
SM 2540 D-97	04/26/2018			04/27/2018 13:15	William L. Brown IV	1987809, 1987812
SM 4500 F-C-97	04/26/2018			05/04/2018 04:54	Dale L. Simmons	1987809
	04/26/2018			05/04/2018 05:05	Dale L. Simmons	1987812
SM 5310 B-00	04/26/2018			05/03/2018 18:25	Megan Treadwell	1987810
	04/26/2018			05/03/2018 18:41	Megan Treadwell	1987813