

Chemical Analysis Report

TLH-ROC-2018-03-22-02

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

Event Description: **A-b/t/m**
Request ID: **RQ-2018-02-26-64**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 11-APR-2018 13:48



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: SPRING CREEK AT US98

Collection Date/Time: 03/22/2018 11:15

Field ID: G1TLHR0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977074	EPA 180.1 Rev. 2.0	Turbidity	2.0	A	NTU	P342051	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P342312	
	SM 2120 B	Color (true)	100	A	PCU	P342056	
	SM 2320 B-97	Total Alkalinity	168	A	mg CaCO3/L	P342532	
	SM 2540 C-97	TDS	217	A	mg/L	P342383	
	SM 2540 D-97	TSS	2	U	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P342477	
1977078	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P342677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P342170	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P342256	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P342216	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P342762	
1977082	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P342087	
1977098	EPA 8321B	2,4-D	0.0020	U	ug/L	P342060	
		Sucralose**	0.044		ug/L	P342018	
		Bentazon	8.0E-04	U	ug/L	P342060	MS
		MCP	0.0020	U	ug/L	P342060	
		Triclopyr**	0.0040	U	ug/L	P342060	
		Imidacloprid	0.0020	U	ug/L	P342060	MS
		Diuron	0.0020	U	ug/L	P342060	
		Pyraclostrobin**	0.0020	U	ug/L	P342060	
		Primidone**	0.0040	U	ug/L	P342060	
		Linuron	0.0040	U	ug/L	P342060	
		Acetaminophen**	0.0080	U	ug/L	P342060	
		Fenuron	0.016	U	ug/L	P342060	
		Imazapyr**	0.0041	I	ug/L	P342060	
		Carbamazepine**	4.0E-04	U	ug/L	P342060	
		Fluridone**	8.0E-04	U	ug/L	P342060	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WOODS CREEK AT OSTEEN RD

Collection Date/Time: 03/22/2018 11:30

Field ID: G1TLHR0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977075	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P342051	
	EPA 300.0 Rev. 2.1	Chloride	6.2		mg Cl/L	P342312	
	SM 2120 B	Color (true)	150		PCU	P342056	
	SM 2320 B-97	Total Alkalinity	144		mg CaCO3/L	P342530	
	SM 2540 C-97	TDS	191		mg/L	P342383	
	SM 2540 D-97	TSS	2	U	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P342534	
1977079	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P342677	

Field ID: G1TLHR0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977079	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50	J	mg N/L	P342170	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P342256	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P342216	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P342762	
1977083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P342087	
1977099	EPA 8321B	2,4-D	0.0020	U	ug/L	P342060	MS
		Sucralose**	0.048		ug/L	P342018	
		Bentazon	8.0E-04	U	ug/L	P342060	
		MCP	0.0020	U	ug/L	P342060	
		Triclopyr**	0.0040	U	ug/L	P342060	
		Imidacloprid	0.0020	U	ug/L	P342060	
		Diuron	0.0020	U	ug/L	P342060	
		Pyraclostrobin**	0.0020	U	ug/L	P342060	
		Primidone**	0.0040	U	ug/L	P342060	
		Linuron	0.0040	U	ug/L	P342060	
		Acetaminophen**	0.0080	U	ug/L	P342060	
		Fenuron	0.016	U	ug/L	P342060	
		Imazapyr**	0.0040	U	ug/L	P342060	
		Carbamazepine**	4.0E-04	U	ug/L	P342060	
		Fluridone**	8.0E-04	U	ug/L	P342060	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: SWEETWATER BRANCH @ CODY CHURCH RD Collection Date/Time: 03/22/2018 13:45

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977076	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P342051	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P342312	
	SM 2120 B	Color (true)	140		PCU	P342056	
	SM 2320 B-97	Total Alkalinity	8.8		mg CaCO3/L	P342530	
	SM 2540 C-97	TDS	62		mg/L	P342383	
	SM 2540 D-97	TSS	2	U	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P342534	
1977080	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P342677	MS
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P342170	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342256	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P342216	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P342762	
1977084	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P342088	
1977100	EPA 8321B	2,4-D	0.0020	U	ug/L	P342060	MS
		Sucralose**	0.010	U	ug/L	P342018	
		Bentazon	8.0E-04	U	ug/L	P342060	

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977100	EPA 8321B	MCP	0.0020	U	ug/L	P342060	
		Triclopyr**	0.0040	U	ug/L	P342060	
		Imidacloprid	0.0020	U	ug/L	P342060	MS
		Diuron	0.0020	U	ug/L	P342060	
		Pyraclostrobin**	0.0020	U	ug/L	P342060	
		Primidone**	0.0040	U	ug/L	P342060	
		Linuron	0.0040	U	ug/L	P342060	
		Acetaminophen**	0.0080	U	ug/L	P342060	
		Fenuron	0.016	U	ug/L	P342060	
		Imazapyr**	0.0040	U	ug/L	P342060	
		Carbamazepine**	4.0E-04	U	ug/L	P342060	
		Fluridone**	8.0E-04	U	ug/L	P342060	

Ref. Method and Comment:

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

Sample Location: MOOREBRANCH@CODYCHURCHRD

Collection Date/Time: 03/22/2018 14:05

Field ID: G1TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977077	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P342051	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P342312	
	SM 2120 B	Color (true)	94		PCU	P342055	
	SM 2320 B-97	Total Alkalinity	0.74	I	mg CaCO3/L	P342530	
	SM 2540 C-97	TDS	47		mg/L	P342383	
	SM 2540 D-97	TSS	2	U	mg/L	P342224	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P342534	
1977081	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P342677	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P342170	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342256	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P342216	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P342762	
1977085	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P342088	
1977101	EPA 8321B	2,4-D	0.0020	U	ug/L	P342060	
		Sucralose**	0.010	U	ug/L	P342018	
		Bentazon	8.0E-04	U	ug/L	P342060	MS
		MCP	0.0020	U	ug/L	P342060	
		Triclopyr**	0.0040	U	ug/L	P342060	
		Imidacloprid	0.0020	U	ug/L	P342060	MS
		Diuron	0.0020	U	ug/L	P342060	
		Pyraclostrobin**	0.0020	U	ug/L	P342060	
		Primidone**	0.0040	U	ug/L	P342060	
		Linuron	0.0040	U	ug/L	P342060	
		Acetaminophen**	0.0080	U	ug/L	P342060	
		Fenuron	0.016	U	ug/L	P342060	
		Imazapyr**	0.0040	U	ug/L	P342060	

Field ID: G1TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1977101	EPA 8321B	Carbamazepine**	4.0E-04	U	ug/L	P342060	
		Fluridone**	8.0E-04	U	ug/L	P342060	

Ref. Method and Comment:
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: P342051

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342312

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342677

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342170

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342256

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342216

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342087

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342088

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P342018

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P342060

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
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: P342055

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P342056

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P342530

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

Reference Method: SM 2320 B-97
Batch ID: P342532

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

Reference Method: SM 2540 C-97
Batch ID: P342383

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P342224

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P342477

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P342534

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P342762

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: P342312

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P342170

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P342256

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342216

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: P342216

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342087

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342088

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

Reference Method: EPA 8321B
Batch ID: P342018

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	102		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342060

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	74.3		P	40 - 150
Acetaminophen	102		P	30 - 150
Bentazon	75.1		P	30 - 150
Carbamazepine	63.9		P	40 - 150
Diuron	62.3		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	56.9		P	40 - 150
Imazapyr	73.3		P	40 - 150
Imidacloprid	95.8		P	40 - 160
Linuron	76.5		P	40 - 150
MCPP	83.1		P	40 - 150
Primidone	107		P	40 - 150
Pyraclostrobin	67.4		P	40 - 150
Triclopyr	68.9		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P342530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P342532

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
 Batch ID: P342477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.2		P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P342534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.2		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P342762

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P342312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976970	Chloride	100		P	90 - 110
1977112	Chloride	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P342677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976844	Ammonia-N	101	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P342170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977079	Kjeldahl Nitrogen	89.5	86.1	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P342256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977043	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P342216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977078	Total-P	96.8	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977084	O-Phosphate-P	98.3	99.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P342018

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976670	Sucralose	94.0	104	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P342060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1976869	2,4-D	66.8	74.0	P/P	40 - 150
1976869	Acetaminophen	127	122	P/P	30 - 150
1976869	Bentazon	21.7	21.5	F/F	30 - 150
1976869	Carbamazepine	76.4	71.8	P/P	40 - 150
1976869	Diuron	69.4	72.3	P/P	40 - 150
1976869	Fenuron	96.0	86.2	P/P	40 - 150
1976869	Fluridone	58.0	59.2	P/P	40 - 150
1976869	Imazapyr	46.7	57.6	P/P	40 - 150
1976869	Imidacloprid	192	196	F/F	40 - 160
1976869	Linuron	80.5	85.5	P/P	40 - 150
1976869	MCP	57.3	61.0	P/P	40 - 150
1976869	Primidone	115	111	P/P	40 - 150
1976869	Pyraclostrobin	70.9	70.0	P/P	40 - 150
1976869	Triclopyr	54.1	53.6	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P342477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977074	Fluoride	95.4	97.3	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P342534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977257	Fluoride	97.3	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977041	Organic Carbon	105		P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	Turbidity	2.00	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976970	Chloride	1.89	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976844	Ammonia-N	0.924	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977079	Kjeldahl Nitrogen	2.63	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977043	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977078	Total-P	3.39	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976984	O-Phosphate-P	0.841	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977084	O-Phosphate-P	0.951	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P342018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976670	Sucralose	9.21	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P342060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976869	2,4-D	8.80	Spike	P	0 - 30
1976869	Acetaminophen	3.77	Spike	P	0 - 30
1976869	Bentazon	0.967	Spike	P	0 - 30
1976869	Carbamazepine	6.26	Spike	P	0 - 30
1976869	Diuron	4.12	Spike	P	0 - 30
1976869	Fenuron	10.7	Spike	P	0 - 30
1976869	Fluridone	2.03	Spike	P	0 - 30
1976869	Imazapyr	15.2	Spike	P	0 - 30
1976869	Imidacloprid	1.96	Spike	P	0 - 30
1976869	Linuron	6.00	Spike	P	0 - 30
1976869	MCPP	6.23	Spike	P	0 - 30
1976869	Primidone	3.27	Spike	P	0 - 30
1976869	Pyraclostrobin	1.21	Spike	P	0 - 30
1976869	Triclopyr	0.781	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P342055

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1976970	Color (true)	2.33	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	Color (true)	0.876	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P342530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977257	Total Alkalinity	0.330	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P342532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	Total Alkalinity	0.336	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P342383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	TDS	0.922	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P342477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977074	Fluoride	1.39	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P342534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977257	Fluoride	0.934	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P342762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1977041	Organic Carbon	0.432	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: 1977098
Field Sample ID: G1TLHR0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	89.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	122	P	30 - 160
EPA 8321B	Carbamazepine-d10	87.2	P	30 - 160
EPA 8321B	Diuron-d6	85.4	P	30 - 160
EPA 8321B	Primidone-d5	120	P	30 - 160
EPA 8321B	Sucralose-d6	82.0	P	40 - 160

Lab Sample ID: 1977099
Field Sample ID: G1TLHR0067

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	118	P	30 - 160
EPA 8321B	Acetaminophen-d4	123	P	30 - 160
EPA 8321B	Carbamazepine-d10	90.6	P	30 - 160
EPA 8321B	Diuron-d6	85.4	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	93.2	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1977100
Field Sample ID: G1TLHR0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	103	P	30 - 160
EPA 8321B	Acetaminophen-d4	126	P	30 - 160
EPA 8321B	Carbamazepine-d10	98.2	P	30 - 160
EPA 8321B	Diuron-d6	84.9	P	30 - 160
EPA 8321B	Primidone-d5	113	P	30 - 160
EPA 8321B	Sucralose-d6	86.9	P	40 - 160

Lab Sample ID: 1977101
Field Sample ID: G1TLHR0041

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	97.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	121	P	30 - 160
EPA 8321B	Carbamazepine-d10	106	P	30 - 160
EPA 8321B	Diuron-d6	88.6	P	30 - 160
EPA 8321B	Primidone-d5	117	P	30 - 160
EPA 8321B	Sucralose-d6	112	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82792
Included Lab Sample IDs: 1977074, 1977075, 1977076, 1977077

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

Reference Method: SM 2120 B
Run ID: A82793
Included Lab Sample IDs: 1977074, 1977075, 1977076, 1977077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	105	P/P	85 - 115
Color (true)	103	103	P/P	85 - 115
Color (true)	105	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82801
Included Lab Sample IDs: 1977082, 1977083, 1977084, 1977085

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

Reference Method: EPA 8321B
Run ID: A82866
Included Lab Sample IDs: 1977098, 1977099, 1977100, 1977101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	94.2	108	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82873

Included Lab Sample IDs: 1977078, 1977079, 1977080, 1977081

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

Reference Method: EPA 8321B

Run ID: A82884

Included Lab Sample IDs: 1977098, 1977099, 1977100, 1977101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.1	93.4	P/P	50 - 150
Acetaminophen	104	113	P/P	60 - 150
Bentazon	97.4	88.0	P/P	50 - 150
Carbamazepine	100	111	P/P	60 - 150
Diuron	112	121	P/P	60 - 150
Fenuron	100	99.6	P/P	60 - 150
Fluridone	109	108	P/P	60 - 160
Imazapyr	91.6	80.6	P/P	50 - 150
Imidacloprid	103	97.5	P/P	60 - 150
Linuron	116	118	P/P	60 - 150
MCPP	104	98.6	P/P	50 - 150
Primidone	104	99.1	P/P	60 - 150
Pyraclostrobin	98.5	102	P/P	60 - 150
Triclopyr	89.9	89.9	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82892

Included Lab Sample IDs: 1977074, 1977075, 1977076, 1977077

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82902

Included Lab Sample IDs: 1977078, 1977079, 1977080

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82912

Included Lab Sample IDs: 1977078, 1977079, 1977080, 1977081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	97.4	P/P	90 - 110
Kjeldahl Nitrogen	93.8	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82948

Included Lab Sample IDs: 1977081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A82950

Included Lab Sample IDs: 1977074

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82967

Included Lab Sample IDs: 1977074, 1977075, 1977076, 1977077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.4	100	P/P	90 - 110
Total Alkalinity	99.7	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82967

Included Lab Sample IDs: 1977075, 1977076, 1977077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.2	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83017

Included Lab Sample IDs: 1977078, 1977079, 1977080, 1977081

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

Reference Method: SM 5310 B-00

Run ID: A83038

Included Lab Sample IDs: 1977078, 1977079, 1977080, 1977081

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.2	97.6	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				2.00	
EPA 300.0 Rev. 2.1	Chloride	99.1	100 96.6		1.89	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	101 99.6			0.924
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4	89.5 86.1			2.63
EPA 353.2 Rev. 2.0	NO2NO3-N	104	100 99.5			0.501
EPA 365.1 Rev. 2.0	Total-P	100	96.8 101			3.39
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100				0.841
	O-Phosphate-P	102	98.3 99.6			0.951
EPA 8321B	2,4-D	74.3	66.8 74.0			8.80
	Acetaminophen	102	127 122			3.77

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Bentazon	75.1	21.7	21.5		0.967
	Carbamazepine	63.9	76.4	71.8		6.26
	Diuron	62.3	69.4	72.3		4.12
	Fenuron	112	96.0	86.2		10.7
	Fluridone	56.9	58.0	59.2		2.03
	Imazapyr	73.3	46.7	57.6		15.2
	Imidacloprid	95.8	192	196		1.96
	Linuron	76.5	80.5	85.5		6.00
	MCP	83.1	57.3	61.0		6.23
	Primidone	107	115	111		3.27
	Pyraclostrobin	67.4	70.9	70.0		1.21
	Sucralose	102	94.0	104		9.21
	Triclopyr	68.9	54.1	53.6		0.781
SM 2120 B	Color (true)				2.33	
	Color (true)				0.876	
SM 2320 B-97	Total Alkalinity	99.4			0.330	
	Total Alkalinity	100			0.336	
SM 2540 C-97	TDS				0.922	
SM 4500 F-C-97	Fluoride	95.2	95.4	97.3		1.39
	Fluoride	94.2	97.3	98.5		0.934
SM 5310 B-00	Organic Carbon	99.6	105			0.432

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1977074, 1977075, 1977076, 1977077
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1977074, 1977075, 1977076, 1977077
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1977078, 1977079, 1977080, 1977081
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1977078, 1977079, 1977080, 1977081
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1977078, 1977079, 1977080, 1977081
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1977078, 1977079, 1977080, 1977081
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1977082, 1977083, 1977084, 1977085
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1977098, 1977099, 1977100, 1977101
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1977098, 1977099, 1977100, 1977101
SM 2120 B / E31780	True Color measured at 450 nm	1977074, 1977075, 1977076, 1977077
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1977074, 1977075, 1977076, 1977077
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1977074, 1977075, 1977076, 1977077
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1977074, 1977075, 1977076, 1977077
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1977074, 1977075, 1977076, 1977077
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1977078, 1977079, 1977080, 1977081

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	03/22/2018			03/22/2018 16:28	DeAsia Armster	1977074, 1977075, 1977076, 1977077
EPA 300.0 Rev. 2.1	03/22/2018			03/27/2018	Lipi Saha	1977074, 1977075, 1977076, 1977077
EPA 350.1 Rev. 2.0	03/22/2018			04/03/2018	Ping Hua	1977078, 1977079, 1977080, 1977081
EPA 351.2 Rev. 2.0	03/22/2018	03/26/2018	Adrian Shelby	03/28/2018	Joseph Suarez	1977078, 1977079, 1977080, 1977081
EPA 353.2 Rev. 2.0	03/22/2018			03/27/2018	Lauren Bottorf	1977078, 1977079, 1977080, 1977081
EPA 365.1 Rev. 2.0	03/22/2018	03/27/2018	Sima Feizi	03/28/2018	Beverly Y. Sanders	1977078, 1977079, 1977080
	03/22/2018	03/27/2018	Sima Feizi	03/29/2018	Beverly Y. Sanders	1977081
EPA 365.1 Rev. 2.0 dissolved	03/22/2018			03/22/2018 16:16	Megan Treadwell	1977084
	03/22/2018			03/22/2018 16:28	Megan Treadwell	1977082, 1977083
	03/22/2018			03/22/2018 16:29	Megan Treadwell	1977085
EPA 8321B	03/22/2018	03/23/2018	Hoor Shaik	03/24/2018	Julie Michelle Frank	1977098, 1977099, 1977100, 1977101
	03/22/2018	03/23/2018	Hoor Shaik	03/25/2018	Julie Michelle Frank	1977098, 1977099, 1977100, 1977101
	03/22/2018	03/26/2018	Julie Michelle Frank	03/27/2018	Juyoung Kim	1977098, 1977099, 1977100, 1977101
SM 2120 B	03/22/2018			03/22/2018 17:29	Tanya Welborn	1977077
	03/22/2018			03/22/2018 17:33	Tanya Welborn	1977074
	03/22/2018			03/22/2018 17:35	Tanya Welborn	1977076
	03/22/2018			03/22/2018 17:47	Tanya Welborn	1977075
SM 2320 B-97	03/22/2018			03/30/2018	Lauren Bottorf	1977075, 1977076, 1977077
	03/22/2018			03/31/2018	Lauren Bottorf	1977074
SM 2540 C-97	03/22/2018			03/23/2018	DeAsia Armster	1977074, 1977075, 1977076, 1977077
SM 2540 D-97	03/22/2018			03/23/2018	DeAsia Armster	1977074, 1977075, 1977076, 1977077
SM 4500 F-C-97	03/22/2018			03/29/2018	Dale L. Simmons	1977074
	03/22/2018			03/30/2018	Lauren Bottorf	1977075, 1977076, 1977077
SM 5310 B-00	03/22/2018			04/04/2018	Megan Treadwell	1977078, 1977079, 1977080, 1977081