

Chemical Analysis Report

TLH-ROC-2018-01-03-01

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

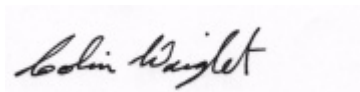
Event Description: **SMP 2017 Freshwater Kit A - b/t/m (3573A_Steinhatchee River, 913_Big Creek)**
Request ID: **RQ-2017-12-04-48**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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Certified by: Colin Wright, Program Administrator

Date Certified: 26-JAN-2018 15:58

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular background.

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: Sweetwater Branch @ Cody Coach Rd

Collection Date/Time: 01/03/2018 09:50

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1957233	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P337761	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P337881	
	SM 2120 B	Color (true)	95		PCU	P337749	
	SM 2320 B-97	Total Alkalinity	7.2		mg CaCO3/L	P338202	
	SM 2540 C-97	TDS	51		mg/L	P337953	
	SM 2540 D-97	TSS	2	I	mg/L	P338192	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P338010	
1957236	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P337924	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P337842	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P337864	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P337817	
	SM 5310 B-00	Organic Carbon	7.1		mg C/L	P337847	
1957239	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P337763	
1957259	EPA 8321B	Sucralose**	0.016	I	ug/L	P337738	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P337734	
		Diuron	8.0E-04	U	ug/L	P337734	
		Fenuron	0.0080	U	ug/L	P337734	
		Imidacloprid	8.0E-04	U	ug/L	P337734	
		Bentazon	8.0E-04	U	ug/L	P337734	
		Linuron	0.0040	U	ug/L	P337734	
		Acetaminophen**	0.0080	U	ug/L	P337734	
		MCP	0.0020	U	ug/L	P337734	
		Carbamazepine**	4.0E-04	U	ug/L	P337734	
		Triclopyr**	0.0040	U	ug/L	P337734	
		Primidone**	0.0040	U	ug/L	P337734	
		Fluridone**	4.0E-04	U	ug/L	P337734	

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: Moore Branch @ Cody Coach Rd

Collection Date/Time: 01/03/2018 10:15

Field ID: G1TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1957234	EPA 180.1 Rev. 2.0	Turbidity	6.4		NTU	P337761	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P337881	
	SM 2120 B	Color (true)	49	A	PCU	P337749	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P338202	
	SM 2540 C-97	TDS	37		mg/L	P337953	
	SM 2540 D-97	TSS	14		mg/L	P338192	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P338010	
1957237	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P337924	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P337842	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P337864	

Field ID: G1TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1957237	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P337817	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P337847	
1957240	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P337763	
1957260	EPA 8321B	Sucralose**	0.010	U	ug/L	P337738	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P337734	
		Diuron	8.0E-04	U	ug/L	P337734	
		Fenuron	0.0080	U	ug/L	P337734	
		Imidacloprid	8.0E-04	U	ug/L	P337734	
		Bentazon	8.0E-04	U	ug/L	P337734	
		Linuron	0.0040	U	ug/L	P337734	
		Acetaminophen**	0.0080	U	ug/L	P337734	
		MCP	0.0020	U	ug/L	P337734	
		Carbamazepine**	4.0E-04	U	ug/L	P337734	
		Triclopyr**	0.0040	U	ug/L	P337734	
		Primidone**	0.0040	U	ug/L	P337734	
		Fluridone**	4.0E-04	U	ug/L	P337734	

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: Lake Overstreet Drain @ N. Meridian

Collection Date/Time: 01/03/2018 11:15

Field ID: G1TLHR0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1957235	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P337761	
	EPA 300.0 Rev. 2.1	Chloride	5.2	A	mg Cl/L	P337881	
	SM 2120 B	Color (true)	19		PCU	P337749	
	SM 2320 B-97	Total Alkalinity	88		mg CaCO3/L	P338202	
	SM 2540 C-97	TDS	102		mg/L	P337953	
	SM 2540 D-97	TSS	3	I	mg/L	P338192	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P338010	
1957238	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P337924	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P337842	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.065		mg N/L	P337864	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P337867	
	SM 5310 B-00	Organic Carbon	1.3		mg C/L	P337847	
1957241	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P337763	
1957261	EPA 8321B	Sucralose**	0.010	U	ug/L	P337738	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P337734	
		Diuron	8.0E-04	U	ug/L	P337734	
		Fenuron	0.0080	U	ug/L	P337734	
		Imidacloprid	8.0E-04	U	ug/L	P337734	
		Bentazon	8.0E-04	U	ug/L	P337734	
		Linuron	0.0040	U	ug/L	P337734	
		Acetaminophen**	0.0080	U	ug/L	P337734	

Field ID: G1TLHR0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1957261	USGS O-2060-01	MCP	0.0020	U	ug/L	P337734	
		Carbamazepine**	4.0E-04	U	ug/L	P337734	
		Triclopyr**	0.0040	U	ug/L	P337734	
		Primidone**	0.0040	U	ug/L	P337734	
		Fluridone**	4.0E-04	U	ug/L	P337734	

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P337761

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P337881

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P337924

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P337842

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P337864

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P337817

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P337867

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: P337763

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

Reference Method: EPA 8321B
Batch ID: P337738

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P337749

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P338202

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

Reference Method: SM 2540 C-97
Batch ID: P337953

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P338192

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P338010

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P337847

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

Reference Method: USGS O-2060-01
Batch ID: P337734

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

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
Batch ID: P337734

Component	Result	Code	Units
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337881

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337842

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: P337864

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337817

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337867

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P337763

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

Reference Method: EPA 8321B
 Batch ID: P337738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	80.1		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P338202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
 Batch ID: P338010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P337847

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P337734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	87.8		P	40 - 150
Acetaminophen	105		P	30 - 150
Bentazon	79.1		P	30 - 150
Carbamazepine	78.0		P	40 - 150
Diuron	66.9		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	65.5		P	40 - 150
Imidacloprid	102		P	40 - 160
Linuron	47.4		P	40 - 150
MCP	92.2		P	40 - 150
Primidone	101		P	40 - 150
Triclopyr	87.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P337881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957185	Chloride	106		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957235	Chloride	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957236	Ammonia-N	95.8	92.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337842

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957236	Kjeldahl Nitrogen	104	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957236	NO2NO3-N	98.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957186	Total-P	100	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337867

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957238	Total-P	96.9	97.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P337738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1956504	Sucralose	62.8	75.5	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P338010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957378	Fluoride	94.0	95.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P337847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957172	Organic Carbon	97.3	95.5	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P337734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1956535	2,4-D	74.2	72.3	P/P	40 - 150
1956535	Acetaminophen	137	135	P/P	30 - 150
1956535	Bentazon	49.9	44.1	P/P	30 - 150
1956535	Carbamazepine	102	107	P/P	40 - 150
1956535	Diuron	76.2	87.2	P/P	40 - 150
1956535	Fenuron	108	105	P/P	40 - 150
1956535	Fluridone	76.1	89.4	P/P	40 - 150
1956535	Imidacloprid	150	151	P/P	40 - 160
1956535	Linuron	68.5	75.5	P/P	40 - 150
1956535	MCP	72.3	66.4	P/P	40 - 150
1956535	Primidone	114	110	P/P	40 - 150
1956535	Triclopyr	65.7	62.8	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P337761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957182	Turbidity	0.256	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P337881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957235	Chloride	1.66	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957236	Ammonia-N	3.20	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957236	Kjeldahl Nitrogen	4.73	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957236	NO ₂ NO ₃ -N	3.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957186	Total-P	3.75	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337867

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957238	Total-P	0.700	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P337763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1956933	O-Phosphate-P	0.762	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P337738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1956504	Sucralose	17.9	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P337749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957234	Color (true)	0.713	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P338202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957478	Total Alkalinity	0.320	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P337953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957184	TDS	5.28	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P338010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957378	Fluoride	1.41	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
 Batch ID: P337847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957172	Organic Carbon	1.16	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P337734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1956535	2,4-D	1.33	Spike	P	0 - 30
1956535	Acetaminophen	1.51	Spike	P	0 - 30
1956535	Bentazon	5.44	Spike	P	0 - 30
1956535	Carbamazepine	4.55	Spike	P	0 - 30
1956535	Diuron	12.9	Spike	P	0 - 30
1956535	Fenuron	3.19	Spike	P	0 - 30
1956535	Fluridone	12.5	Spike	P	0 - 30
1956535	Imidacloprid	1.05	Spike	P	0 - 30
1956535	Linuron	9.61	Spike	P	0 - 30
1956535	MCPP	8.42	Spike	P	0 - 30
1956535	Primidone	3.46	Spike	P	0 - 30
1956535	Triclopyr	4.39	Spike	P	0 - 30

* 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: 1957259
 Field Sample ID: G1TLHR0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	131	P	30 - 160
EPA 8321B	Carbamazepine-d10	104	P	30 - 160
EPA 8321B	Diuron-d6	81.7	P	30 - 160
EPA 8321B	Primidone-d5	123	P	30 - 160
EPA 8321B	Sucralose-d6	74.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	113	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	131	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	104	P	30 - 160
USGS O-2060-01	Diuron-d6	81.7	P	30 - 160
USGS O-2060-01	Primidone-d5	123	P	30 - 160
USGS O-2060-01	Sucralose-d6	74.1	P	40 - 160

Lab Sample ID: 1957260
 Field Sample ID: G1TLHR0041

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	129	P	30 - 160
EPA 8321B	Carbamazepine-d10	109	P	30 - 160
EPA 8321B	Diuron-d6	76.8	P	30 - 160
EPA 8321B	Primidone-d5	125	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1957260
 Field Sample ID: G1TLHR0041

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	76.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	93.8	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	129	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	109	P	30 - 160
USGS O-2060-01	Diuron-d6	76.8	P	30 - 160
USGS O-2060-01	Primidone-d5	125	P	30 - 160
USGS O-2060-01	Sucralose-d6	76.1	P	40 - 160

Lab Sample ID: 1957261
 Field Sample ID: G1TLHR0069

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	120	P	30 - 160
EPA 8321B	Carbamazepine-d10	51.5	P	30 - 160
EPA 8321B	Carbamazepine-d10	104	P	30 - 160
EPA 8321B	Diuron-d6	103	P	30 - 160
EPA 8321B	Sucralose-d6	71.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	71.8	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	120	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	51.5	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	104	P	30 - 160
USGS O-2060-01	Diuron-d6	103	P	30 - 160
USGS O-2060-01	Sucralose-d6	71.4	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
 Run ID: A81259
 Included Lab Sample IDs: 1957233, 1957234, 1957235

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

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A81261
 Included Lab Sample IDs: 1957233, 1957234, 1957235

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A81262
 Included Lab Sample IDs: 1957239, 1957240, 1957241

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.8	P/P	90 - 110
O-Phosphate-P	99.7	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A81296

Included Lab Sample IDs: 1957259, 1957260, 1957261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	78.2	76.7	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A81297

Included Lab Sample IDs: 1957236, 1957237, 1957238

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81299

Included Lab Sample IDs: 1957236, 1957237

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A81303

Included Lab Sample IDs: 1957236, 1957237, 1957238

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

Reference Method: USGS O-2060-01

Run ID: A81307

Included Lab Sample IDs: 1957259, 1957260, 1957261

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.2	93.2	P/P	50 - 150
Acetaminophen	110	106	P/P	60 - 150
Bentazon	86.3	80.9	P/P	50 - 150
Carbamazepine	101	102	P/P	60 - 150
Carbamazepine	98.2	101	P/P	60 - 150
Diuron	103	98.7	P/P	60 - 150
Diuron	98.7	104	P/P	60 - 150
Fenuron	106	106	P/P	60 - 150
Fenuron	106	108	P/P	60 - 150
Fluridone	108	112	P/P	60 - 160
Fluridone	112	115	P/P	60 - 160
Imidacloprid	106	101	P/P	60 - 150
Imidacloprid	99.2	106	P/P	60 - 150
Linuron	107	107	P/P	60 - 150
Linuron	114	107	P/P	60 - 150
MCPP	94.4	91.9	P/P	50 - 150
Primidone	84.6	95.2	P/P	60 - 150
Triclopyr	93.7	90.7	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A81315

Included Lab Sample IDs: 1957233, 1957234, 1957235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	104	P/P	90 - 110
Chloride	104	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A81322

Included Lab Sample IDs: 1957236, 1957237, 1957238

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	91.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A81324

Included Lab Sample IDs: 1957238

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81332

Included Lab Sample IDs: 1957236, 1957237, 1957238

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

Reference Method: SM 4500 F-C-97

Run ID: A81369

Included Lab Sample IDs: 1957233, 1957234, 1957235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A81446

Included Lab Sample IDs: 1957233, 1957234, 1957235

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.5	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 SMP	MS
			LCS			
EPA 180.1 Rev. 2.0	Turbidity				0.256	
EPA 300.0 Rev. 2.1	Chloride	103	104	106	1.66	
EPA 350.1 Rev. 2.0	Ammonia-N	95.9	95.8	92.8		3.20

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	104	98.2		4.73
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	98.0	101		3.02
EPA 365.1 Rev. 2.0	Total-P	106	100	106		3.75
	Total-P	99.4	96.9	97.8		0.700
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101				0.762
EPA 8321B	Sucralose	80.1	62.8	75.5		17.9
SM 2120 B	Color (true)				0.713	
SM 2320 B-97	Total Alkalinity	102			0.320	
SM 2540 C-97	TDS				5.28	
SM 4500 F-C-97	Fluoride	94.8	94.0	95.6		1.41
SM 5310 B-00	Organic Carbon	95.0	97.3	95.5		1.16
USGS O-2060-01	2,4-D	87.8	74.2	72.3		1.33
	Acetaminophen	105	135	137		1.51
	Bentazon	79.1	49.9	44.1		5.44
	Carbamazepine	78.0	107	102		4.55
	Diuron	66.9	87.2	76.2		12.9
	Fenuron	109	105	108		3.19
	Fluridone	65.5	89.4	76.1		12.5
	Imidacloprid	102	151	150		1.05
	Linuron	47.4	75.5	68.5		9.61
	MCP	92.2	72.3	66.4		8.42
	Primidone	101	110	114		3.46
	Triclopyr	87.6	65.7	62.8		4.39

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1957233, 1957234, 1957235
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1957233, 1957234, 1957235
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1957236, 1957237, 1957238
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1957236, 1957237, 1957238
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1957236, 1957237, 1957238
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1957236, 1957237, 1957238
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1957239, 1957240, 1957241
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1957259, 1957260, 1957261
SM 2120 B / E31780	True Color measured at 450 nm	1957233, 1957234, 1957235
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1957233, 1957234, 1957235
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1957233, 1957234, 1957235
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1957233, 1957234, 1957235
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1957233, 1957234, 1957235
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1957236, 1957237, 1957238
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1957259, 1957260, 1957261
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1957259, 1957260, 1957261

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	01/03/2018			01/03/2018 14:47	DeAsia Armster	1957233, 1957234, 1957235
EPA 300.0 Rev. 2.1	01/03/2018			01/04/2018	Julia Storbeck	1957233, 1957235
	01/03/2018			01/05/2018	Julia Storbeck	1957234
EPA 350.1 Rev. 2.0	01/03/2018			01/08/2018	Sofia Elnemr	1957236, 1957237, 1957238
EPA 351.2 Rev. 2.0	01/03/2018	01/05/2018	Adrian Shelby	01/08/2018	Joseph Suarez	1957236, 1957237, 1957238
EPA 353.2 Rev. 2.0	01/03/2018			01/05/2018	Beverly Y. Sanders	1957236, 1957237, 1957238
EPA 365.1 Rev. 2.0	01/03/2018	01/04/2018	Sima Feizi	01/04/2018	Lipi Saha	1957236, 1957237
	01/03/2018	01/05/2018	Sima Feizi	01/08/2018	Lipi Saha	1957238
EPA 365.1 Rev. 2.0 dissolved	01/03/2018			01/03/2018 16:09	Megan Treadwell	1957239
	01/03/2018			01/03/2018 16:37	Megan Treadwell	1957240, 1957241
EPA 8321B	01/03/2018	01/04/2018	Mohammad Ghaffari	01/04/2018	Mohammad Ghaffari	1957259, 1957260, 1957261
SM 2120 B	01/03/2018			01/03/2018 14:58	Tanya Welborn	1957233
	01/03/2018			01/03/2018 14:59	Tanya Welborn	1957234
	01/03/2018			01/03/2018 15:00	Tanya Welborn	1957235
SM 2320 B-97	01/03/2018			01/11/2018	Dale L. Simmons	1957233, 1957234, 1957235
SM 2540 C-97	01/03/2018			01/05/2018	Yijie Li	1957233, 1957234, 1957235
SM 2540 D-97	01/03/2018			01/05/2018	Yijie Li	1957233, 1957234, 1957235
SM 4500 F-C-97	01/03/2018			01/09/2018	Dale L. Simmons	1957233, 1957234, 1957235
SM 5310 B-00	01/03/2018			01/04/2018	Megan Treadwell	1957236, 1957237, 1957238
USGS O-2060-01	01/03/2018	01/04/2018	Julie Michelle Frank	01/04/2018	Julie Michelle Frank	1957259, 1957260
	01/03/2018	01/04/2018	Julie Michelle Frank	01/05/2018	Julie Michelle Frank	1957259, 1957260, 1957261