

Chemical Analysis Report

TLH-ROC-2018-07-02-01

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

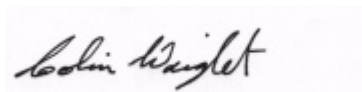
Event Description: **A-b/t/m**
Request ID: **RQ-2018-05-14-41**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
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Certified by: Colin Wright, Program Administrator

Date Certified: 20-JUL-2018 11:22

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed 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 CHURCH RD Collection Date/Time: 07/02/2018 09:25

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004503	EPA 180.1 Rev. 2.0	Turbidity	6.6	A	NTU	P347944	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P348363	
		Sulfate	0.63		mg SO4/L	P348367	
	SM 2120 B	Color (true)	160		PCU	P347936	
	SM 2320 B-97	Total Alkalinity	7.3		mg CaCO3/L	P348125	
	SM 2540 C-97	TDS	63		mg/L	P348157	
	SM 2540 D-97	TSS	6	I	mg/L	P348065	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P348126	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P348354	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P348140	
2004505	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P348200	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P348078	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P348374	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.050		mg P/L	P347989	
	dissolved						
2004507	EPA 8321B	2,4-D	0.0020	U	ug/L	P347578	
2004515		Bentazon	8.0E-04	U	ug/L	P347578	
		MCP	0.0020	U	ug/L	P347578	MS
		Triclopyr**	0.0040	U	ug/L	P347578	MS
		Imidacloprid	0.0094		ug/L	P347578	
		Diuron	0.0020	U	ug/L	P347578	
		Pyraclostrobin**	0.0020	U	ug/L	P347578	
		Primidone**	0.0040	U	ug/L	P347578	
		Linuron	0.0040	U	ug/L	P347578	
		Acetaminophen**	0.0080	U	ug/L	P347578	
		Fenuron	0.016	U	ug/L	P347578	
		Imazapyr**	0.0040	U	ug/L	P347578	
		Carbamazepine**	4.0E-04	U	ug/L	P347578	
		Fluridone**	4.0E-04	U	ug/L	P347578	
		Hydrocodone**	8.0E-04	U	ug/L	P347578	
		Sucralose**	0.010	U	ug/L	P347806	

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: MOORE BRANCH @ CODY CHURC

Collection Date/Time: 07/02/2018 09:40

Field ID: G1TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2004504	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P347944	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P348363	
		Sulfate	0.88		mg SO4/L	P348367	
	SM 2120 B	Color (true)	150		PCU	P347936	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P348125	
	SM 2540 C-97	TDS	56		mg/L	P348157	
	SM 2540 D-97	TSS	3	I	mg/L	P348065	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P348126	
2004506	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P348354	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P348140	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.021		mg N/L	P348200	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P348078	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P348374	
2004508	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P347989	
2004516	EPA 8321B	2,4-D	0.0020	U	ug/L	P347578	
		Bentazon	8.0E-04	U	ug/L	P347578	
		MCP	0.0020	U	ug/L	P347578	MS
		Triclopyr**	0.0040	U	ug/L	P347578	MS
		Imidacloprid	0.0027	I	ug/L	P347578	
		Diuron	0.0020	U	ug/L	P347578	
		Pyraclostrobin**	0.0020	U	ug/L	P347578	
		Primidone**	0.0040	U	ug/L	P347578	
		Linuron	0.0040	U	ug/L	P347578	
		Acetaminophen**	0.0080	U	ug/L	P347578	
		Fenuron	0.016	U	ug/L	P347578	
		Imazapyr**	0.0040	U	ug/L	P347578	
		Carbamazepine**	4.0E-04	U	ug/L	P347578	
		Fluridone**	4.0E-04	U	ug/L	P347578	
		Hydrocodone**	8.0E-04	U	ug/L	P347578	
		Sucralose**	0.010	U	ug/L	P347806	

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: P347944

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348363

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348367

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348354

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348140

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348200

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347989

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

Reference Method: EPA 8321B
Batch ID: P347578

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: EPA 8321B
Batch ID: P347578

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-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: EPA 8321B
Batch ID: P347806

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P347936

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P348125

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

Reference Method: SM 2540 C-97
Batch ID: P348157

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P348065

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P348374

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P348374

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: P348363

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P348367

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P348354

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: P348140

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P348200

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P348078

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P347989

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.3		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P347578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	90.9		P	40 - 150
Acetaminophen	87.7		P	30 - 150
Bentazon	88.8		P	30 - 150
Carbamazepine	90.0		P	40 - 150
Diuron	80.7		P	40 - 150
Fenuron	94.6		P	40 - 150
Fluridone	93.7		P	40 - 150
Hydrocodone	94.4		P	40 - 150
Imazapyr	82.4		P	40 - 150
Imidacloprid	95.7		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P347578

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Linuron	71.0		P	40 - 150
MCPP	125		P	40 - 150
Primidone	86.0		P	40 - 150
Pyraclostrobin	77.2		P	40 - 150
Triclopyr	112		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P347806

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	71.0		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P347936

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P348125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P348374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004379	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004379	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004434	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004539	Kjeldahl Nitrogen	103	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348200

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004505	NO2NO3-N	98.8	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004435	Total-P	94.8	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004507	O-Phosphate-P	97.3	98.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P347578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003741	2,4-D	116	139	P/P	40 - 150
2003741	Acetaminophen	70.3	71.7	P/P	30 - 150
2003741	Bentazon	39.9	48.0	P/P	30 - 150
2003741	Carbamazepine	62.2	62.4	P/P	40 - 150
2003741	Diuron	51.4	53.0	P/P	40 - 150
2003741	Fenuron	58.1	59.0	P/P	40 - 150
2003741	Fluridone	75.2	78.2	P/P	40 - 150
2003741	Hydrocodone	63.4	61.6	P/P	40 - 150
2003741	Imazapyr	64.2	67.5	P/P	40 - 150
2003741	Imidacloprid	113	113	P/P	40 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P347578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003741	Linuron	52.4	53.6	P/P	40 - 150
2003741	MCP	145	159	P/F	40 - 150
2003741	Primidone	60.5	67.4	P/P	40 - 150
2003741	Pyraclostrobin	80.6	78.3	P/P	40 - 150
2003741	Triclopyr	177	192	F/F	40 - 150

Reference Method: EPA 8321B
Batch ID: P347806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004229	Sucralose	73.6	72.3	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004538	Fluoride	98.0	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P348374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2004267	Organic Carbon	97.3	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004503	Turbidity	2.59	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004379	Chloride	0.758	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P348367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004379	Sulfate	0.888	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P348354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004434	Ammonia-N	0.278	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004539	Kjeldahl Nitrogen	4.62	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348200

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004505	NO2NO3-N	0.464	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P348078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004435	Total-P	2.63	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004507	O-Phosphate-P	0.879	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P347578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003741	2,4-D	17.7	Spike	P	0 - 30
2003741	Acetaminophen	1.92	Spike	P	0 - 30
2003741	Bentazon	18.4	Spike	P	0 - 30
2003741	Carbamazepine	0.334	Spike	P	0 - 30
2003741	Diuron	3.13	Spike	P	0 - 30
2003741	Fenuron	1.62	Spike	P	0 - 30
2003741	Fluridone	3.79	Spike	P	0 - 30
2003741	Hydrocodone	2.89	Spike	P	0 - 30
2003741	Imazapyr	4.06	Spike	P	0 - 30
2003741	Imidacloprid	0.103	Spike	P	0 - 30
2003741	Linuron	2.31	Spike	P	0 - 30
2003741	MCPP	9.22	Spike	P	0 - 30
2003741	Primidone	10.8	Spike	P	0 - 30
2003741	Pyraclostrobin	2.89	Spike	P	0 - 30
2003741	Triclopyr	8.06	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P347806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004229	Sucralose	1.75	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P347936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004590	Color (true)	0.305	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P348125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004538	Total Alkalinity	0.252	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P348157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004163	TDS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P348126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004538	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P348374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2004267	Organic Carbon	0.804	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: 2004515
Field Sample ID: G1TLHR0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	91.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	77.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	74.6	P	30 - 160
EPA 8321B	Diuron-d6	69.6	P	30 - 160
EPA 8321B	Primidone-d5	81.2	P	30 - 160
EPA 8321B	Sucralose-d6	76.2	P	40 - 160

Lab Sample ID: 2004516
Field Sample ID: G1TLHR0041

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	120	P	30 - 160
EPA 8321B	Acetaminophen-d4	72.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.6	P	30 - 160
EPA 8321B	Diuron-d6	61.0	P	30 - 160
EPA 8321B	Primidone-d5	78.9	P	30 - 160
EPA 8321B	Sucralose-d6	91.6	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A84988

Included Lab Sample IDs: 2004515, 2004516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	113	P/P	50 - 150
Acetaminophen	108	112	P/P	60 - 160
Bentazon	137	132	P/P	50 - 150
Carbamazepine	105	101	P/P	60 - 160
Diuron	99.6	100	P/P	60 - 150
Fenuron	98.9	100	P/P	60 - 150
Fluridone	110	110	P/P	60 - 160
Hydrocodone	98.9	102	P/P	60 - 150
Imazapyr	80.0	90.9	P/P	50 - 150
Imidacloprid	92.3	94.2	P/P	60 - 150
Linuron	92.3	88.7	P/P	60 - 150
MCPP	119	117	P/P	50 - 150
Primidone	94.7	89.4	P/P	60 - 150
Pyraclostrobin	102	104	P/P	60 - 150
Triclopyr	98.1	113	P/P	50 - 160

Reference Method: SM 2120 B

Run ID: A85012

Included Lab Sample IDs: 2004503, 2004504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85014

Included Lab Sample IDs: 2004503, 2004504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85036

Included Lab Sample IDs: 2004507, 2004508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.3	94.0	P/P	90 - 110
O-Phosphate-P	98.9	95.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A85066

Included Lab Sample IDs: 2004515, 2004516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	86.3	92.7	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85103

Included Lab Sample IDs: 2004505, 2004506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85103

Included Lab Sample IDs: 2004505, 2004506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.8	98.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85107

Included Lab Sample IDs: 2004503, 2004504

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: A85107

Included Lab Sample IDs: 2004503, 2004504

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A85130

Included Lab Sample IDs: 2004505, 2004506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A85187

Included Lab Sample IDs: 2004503, 2004504

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.6	98.6	P/P	90 - 110
Sulfate	96.9	97.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85188

Included Lab Sample IDs: 2004505, 2004506

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85189

Included Lab Sample IDs: 2004505, 2004506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A85195

Included Lab Sample IDs: 2004505, 2004506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	99.4	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.59	
EPA 300.0 Rev. 2.1	Chloride	99.5	98.4			0.758	
	Sulfate	97.1	101			0.888	
EPA 350.1 Rev. 2.0	Ammonia-N	102	102	101			0.278
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	97.6			4.62
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.8	98.3			0.464
EPA 365.1 Rev. 2.0	Total-P	98.1	94.8	97.4			2.63
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.3	97.3	98.6			0.879
EPA 8321B	2,4-D	90.9	116	139			17.7
	Acetaminophen	87.7	70.3	71.7			1.92
	Bentazon	88.8	39.9	48.0			18.4
	Carbamazepine	90.0	62.2	62.4			0.334
	Diuron	80.7	51.4	53.0			3.13
	Fenuron	94.6	58.1	59.0			1.62
	Fluridone	93.7	75.2	78.2			3.79
	Hydrocodone	94.4	63.4	61.6			2.89
	Imazapyr	82.4	64.2	67.5			4.06
	Imidacloprid	95.7	113	113			0.103
	Linuron	71.0	52.4	53.6			2.31
	MCPP	125	145	159			9.22
	Primidone	86.0	60.5	67.4			10.8
	Pyraclostrobin	77.2	80.6	78.3			2.89
	Sucralose	71.0	73.6	72.3			1.75
	Triclopyr	112	177	192			8.06
SM 2120 B	Color (true)	99.5				0.305	
SM 2320 B-97	Total Alkalinity	104				0.252	
SM 2540 C-97	TDS					8.00	
SM 4500 F-C-97	Fluoride	99.3	98.0	98.0			0.0
SM 5310 B-00	Organic Carbon	97.0	97.3	98.8			0.804

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2004503, 2004504
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2004503, 2004504
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2004503, 2004504
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2004505, 2004506
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2004505, 2004506
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2004505, 2004506
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2004505, 2004506
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2004507, 2004508
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2004515, 2004516
SM 2120 B / E31780	True Color measured at 450 nm	2004503, 2004504
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2004503, 2004504
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2004503, 2004504
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2004503, 2004504
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2004503, 2004504

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2004505, 2004506

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	07/02/2018			07/03/2018 14:00	William L. Brown IV	2004503, 2004504
EPA 300.0 Rev. 2.1	07/02/2018			07/11/2018 00:03	Lipi Saha	2004503
	07/02/2018			07/11/2018 00:15	Lipi Saha	2004504
EPA 350.1 Rev. 2.0	07/02/2018			07/12/2018 11:58	Ping Hua	2004505
	07/02/2018			07/12/2018 11:59	Ping Hua	2004506
EPA 351.2 Rev. 2.0	07/02/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:17	Joseph Suarez	2004505
	07/02/2018	07/10/2018 15:30	Adrian Shelby	07/12/2018 14:18	Joseph Suarez	2004506
EPA 353.2 Rev. 2.0	07/02/2018			07/09/2018 13:01	Lauren Bottorf	2004505
	07/02/2018			07/09/2018 13:13	Lauren Bottorf	2004506
EPA 365.1 Rev. 2.0	07/02/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 08:28	Beverly Y. Sanders	2004505
	07/02/2018	07/09/2018 12:30	Lipi Saha	07/10/2018 08:29	Beverly Y. Sanders	2004506
EPA 365.1 Rev. 2.0 dissolved	07/02/2018			07/03/2018 16:50	Megan Treadwell	2004507
	07/02/2018			07/03/2018 17:29	Megan Treadwell	2004508
EPA 8321B	07/02/2018	07/02/2018 14:30	Hoor Shaik	07/04/2018 07:28	Juyoung Kim	2004515
	07/02/2018	07/02/2018 14:30	Hoor Shaik	07/04/2018 08:02	Juyoung Kim	2004516
	07/02/2018	07/02/2018 14:30	Hoor Shaik	07/05/2018 00:10	Juyoung Kim	2004515
	07/02/2018	07/02/2018 14:30	Hoor Shaik	07/05/2018 00:45	Juyoung Kim	2004516
	07/02/2018	07/02/2018 16:00	Mohammad Ghaffari	07/06/2018 07:29	Mohammad Ghaffari	2004515
	07/02/2018	07/02/2018 16:00	Mohammad Ghaffari	07/06/2018 07:47	Mohammad Ghaffari	2004516
SM 2120 B	07/02/2018			07/03/2018 16:07	Tanya Welborn	2004504
	07/02/2018			07/03/2018 16:31	Tanya Welborn	2004503
SM 2320 B-97	07/02/2018			07/10/2018 00:08	Dale L. Simmons	2004503
	07/02/2018			07/10/2018 00:17	Dale L. Simmons	2004504
SM 2540 C-97	07/02/2018			07/03/2018 14:08	Yijie Li	2004503, 2004504
SM 2540 D-97	07/02/2018			07/03/2018 14:08	Yijie Li	2004503, 2004504
SM 4500 F-C-97	07/02/2018			07/10/2018 00:08	Dale L. Simmons	2004503
	07/02/2018			07/10/2018 00:17	Dale L. Simmons	2004504
SM 5310 B-00	07/02/2018			07/12/2018 05:51	Megan Treadwell	2004505
	07/02/2018			07/12/2018 06:22	Megan Treadwell	2004506