

Chemical Analysis Report

TLH-ROC-2018-07-19-03

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

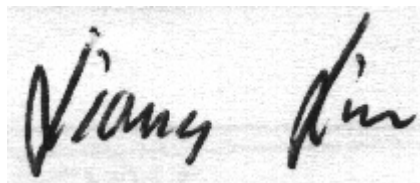
Event Description: **A-b/t/m**
Request ID: **RQ-2018-05-14-41**
Customer: **TLH-ROC**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 14-AUG-2018 14:23

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: 07/19/2018 09:05

Field ID: G1TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2009386	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P348829	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P349259	
		Sulfate	0.69		mg SO4/L	P349263	
	SM 2120 B	Color (true)	120		PCU	P348783	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P349027	
	SM 2540 C-97	TDS	52	A	mg/L	P349197	
	SM 2540 D-97	TSS	2	UA	mg/L	P349174	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P349031	
2009387	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P349159	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P349002	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.069		mg N/L	P348974	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P349308	
	SM 5310 B-00	Organic Carbon	8.8		mg C/L	P349005	
2009388	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.064		mg P/L	P348788	
2009393	EPA 8321B	2,4-D	0.0020	U	ug/L	P348774	
		Bentazon	8.0E-04	U	ug/L	P348774	
		MCP	0.0020	U	ug/L	P348774	
		Triclopyr**	0.0040	U	ug/L	P348774	
		Imidacloprid	0.0020	U	ug/L	P348774	
		Diuron	0.0020	U	ug/L	P348774	
		Pyraclostrobin**	0.0020	U	ug/L	P348774	
		Primidone**	0.0040	U	ug/L	P348774	
		Linuron	0.0040	U	ug/L	P348774	
		Acetaminophen**	0.0080	U	ug/L	P348774	
		Fenuron	0.016	U	ug/L	P348774	
		Imazapyr**	0.0040	U	ug/L	P348774	
		Carbamazepine**	4.0E-04	U	ug/L	P348774	
		Fluridone**	4.0E-04	U	ug/L	P348774	
		Hydrocodone**	8.0E-04	U	ug/L	P348774	
		Sucralose**	0.010	U	ug/L	P348596	

Ref. Method and Comment:

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

EPA 8321B: Insufficient sample to perform matrix spikes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348829

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349259

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349263

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349159

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348974

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349308

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348788

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

Reference Method: EPA 8321B
Batch ID: P348596

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P348774

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	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: SM 2120 B
Batch ID: P348783

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P349027

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

Reference Method: SM 2540 C-97
Batch ID: P349197

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349174

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P349005

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: P349259

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P349263

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P349159

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P349002

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P348974

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: P349308

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: P348788

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.5		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P348596

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	86.3		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P348774

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	115	112	P/P	40 - 150
Acetaminophen	77.5	98.7	P/P	30 - 150
Bentazon	93.1	89.1	P/P	30 - 150
Carbamazepine	67.4	73.7	P/P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P348774

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	53.7	65.1	P/P	40 - 150
Fenuron	97.5	108	P/P	40 - 150
Fluridone	79.2	87.9	P/P	40 - 150
Hydrocodone	86.0	93.5	P/P	40 - 150
Imazapyr	93.7	97.5	P/P	40 - 150
Imidacloprid	98.5	105	P/P	40 - 160
Linuron	75.9	77.2	P/P	40 - 150
MCPP	138	132	P/P	40 - 150
Primidone	86.2	99.4	P/P	40 - 150
Pyraclostrobin	78.2	88.4	P/P	40 - 150
Triclopyr	139	133	P/P	40 - 150

Reference Method: SM 2120 B
Batch ID: P348783

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

Reference Method: SM 2320 B-97
Batch ID: P349027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349005

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009370	Chloride	102		P	90 - 110
2009396	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009370	Sulfate	100		P	90 - 110
2009396	Sulfate	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009373	Ammonia-N	98.5	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009578	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009232	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009577	Total-P	97.3	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009235	O-Phosphate-P	96.3	96.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P348596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2007532	Sucralose	92.2	91.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009225	Fluoride	98.4	96.3	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P349005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2009067	Organic Carbon	92.7	94.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P348829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009359	Turbidity	0.458	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009370	Chloride	9.03	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009370	Sulfate	7.80	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009373	Ammonia-N	0.348	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009578	Kjeldahl Nitrogen	1.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P348974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009232	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009577	Total-P	0.326	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P348788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009235	O-Phosphate-P	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P348596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2007532	Sucralose	1.05	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P348774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	2,4-D	2.45	LCS	P	0 - 30
LFB	Acetaminophen	24.0	LCS	P	0 - 30
LFB	Bentazon	4.36	LCS	P	0 - 30
LFB	Carbamazepine	8.84	LCS	P	0 - 30
LFB	Diuron	19.2	LCS	P	0 - 30
LFB	Fenuron	10.2	LCS	P	0 - 30
LFB	Fluridone	10.5	LCS	P	0 - 30
LFB	Hydrocodone	8.33	LCS	P	0 - 30
LFB	Imazapyr	3.94	LCS	P	0 - 30
LFB	Imidacloprid	6.71	LCS	P	0 - 30
LFB	Linuron	1.75	LCS	P	0 - 30
LFB	MCP	4.52	LCS	P	0 - 30
LFB	Primidone	14.2	LCS	P	0 - 30
LFB	Pyraclostrobin	12.2	LCS	P	0 - 30
LFB	Triclopyr	4.80	LCS	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P348783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009283	Color (true)	4.80	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P349027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009225	Total Alkalinity	0.239	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P349197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009386	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P349031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009225	Fluoride	1.92	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P349005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009067	Organic Carbon	1.04	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: 2009393
Field Sample ID: G1TLHR0040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	114	P	30 - 160
EPA 8321B	Acetaminophen-d4	89.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.6	P	30 - 160
EPA 8321B	Diuron-d6	60.5	P	30 - 160
EPA 8321B	Primidone-d5	109	P	30 - 160
EPA 8321B	Sucralose-d6	118	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A85347
Included Lab Sample IDs: 2009386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	105	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A85348
Included Lab Sample IDs: 2009388

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.3	97.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A85363
Included Lab Sample IDs: 2009386

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

Reference Method: EPA 8321B
Run ID: A85393
Included Lab Sample IDs: 2009393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	97.6	87.1	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A85414
Included Lab Sample IDs: 2009387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A85417
Included Lab Sample IDs: 2009386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	106	P/P	90 - 110
Sulfate	104	107	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A85418
Included Lab Sample IDs: 2009387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A85430
Included Lab Sample IDs: 2009386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A85430

Included Lab Sample IDs: 2009386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85448

Included Lab Sample IDs: 2009387

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	97.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A85474

Included Lab Sample IDs: 2009387

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A85548

Included Lab Sample IDs: 2009387

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

Reference Method: EPA 8321B

Run ID: A85629

Included Lab Sample IDs: 2009393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	106	93.1	P/P	50 - 150
Bentazon	115	76.7	P/P	50 - 150
MCP	98.3	79.3	P/P	50 - 150
Triclopyr	74.1	78.7	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A85635

Included Lab Sample IDs: 2009393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	97.9	109	P/P	60 - 150
Carbamazepine	90.4	96.6	P/P	60 - 150
Diuron	83.2	85.6	P/P	60 - 150
Fenuron	85.3	87.3	P/P	60 - 150
Fluridone	96.7	97.3	P/P	60 - 160
Hydrocodone	92.4	104	P/P	60 - 150
Imazapyr	99.1	103	P/P	50 - 150
Imidacloprid	84.6	90.5	P/P	60 - 150
Linuron	86.7	85.0	P/P	60 - 150
Primidone	94.8	105	P/P	60 - 150
Pyraclostrobin	93.8	95.8	P/P	60 - 150

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	
							SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.458	
EPA 300.0 Rev. 2.1	Chloride	98.1		102	98.9		9.03	
	Sulfate	98.1		100	97.8		7.80	
EPA 350.1 Rev. 2.0	Ammonia-N	101		98.5	98.9			0.348
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1		107	105			1.27
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102		102	103			0.976
EPA 365.1 Rev. 2.0	Total-P	100		97.3	97.6			0.326
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5		96.3	96.3			0.0
EPA 8321B	2,4-D	115	112			2.45		
	Acetaminophen	77.5	98.7			24.0		
	Bentazon	93.1	89.1			4.36		
	Carbamazepine	67.4	73.7			8.84		
	Diuron	53.7	65.1			19.2		
	Fenuron	97.5	108			10.2		
	Fluridone	79.2	87.9			10.5		
	Hydrocodone	86.0	93.5			8.33		
	Imazapyr	93.7	97.5			3.94		
	Imidacloprid	98.5	105			6.71		
	Linuron	75.9	77.2			1.75		
	MCP	138	132			4.52		
	Primidone	86.2	99.4			14.2		
	Pyraclostrobin	78.2	88.4			12.2		
	Sucralose	86.3		92.2	91.2			1.05
	Triclopyr	139	133			4.80		
SM 2120 B	Color (true)	101					4.80	
SM 2320 B-97	Total Alkalinity	106					0.239	
SM 2540 C-97	TDS						0.0	
SM 4500 F-C-97	Fluoride	96.1		98.4	96.3			1.92
SM 5310 B-00	Organic Carbon	94.8		92.7	94.1			1.04

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2009386
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2009386
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2009386
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2009387
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2009387
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2009387
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2009387
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2009388
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2009393
SM 2120 B / E31780	True Color measured at 450 nm	2009386
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2009386
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2009386
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2009386
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2009386

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2009387

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	07/19/2018			07/19/2018 15:51	Blanca Fach	2009386
EPA 300.0 Rev. 2.1	07/19/2018			07/25/2018 21:09	Lipi Saha	2009386
EPA 350.1 Rev. 2.0	07/19/2018			07/25/2018 13:38	Ping Hua	2009387
EPA 351.2 Rev. 2.0	07/19/2018	07/24/2018 08:13	Adrian Shelby	07/25/2018 09:49	Joseph Suarez	2009387
EPA 353.2 Rev. 2.0	07/19/2018			07/23/2018 13:32	Lauren Bottorf	2009387
EPA 365.1 Rev. 2.0	07/19/2018	07/27/2018 12:35	Sima Feizi	07/30/2018 09:24	Beverly Y. Sanders	2009387
EPA 365.1 Rev. 2.0 dissolved	07/19/2018			07/19/2018 16:08	Julia Storbeck	2009388
EPA 8321B	07/19/2018	07/20/2018 15:00	Mohammad Ghaffari	07/21/2018 09:21	Mohammad Ghaffari	2009393
	07/19/2018	07/25/2018 08:30	Hoor Shaik	07/27/2018 18:10	Juyoung Kim	2009393
	07/19/2018	07/25/2018 08:30	Hoor Shaik	08/02/2018 13:13	Juyoung Kim	2009393
SM 2120 B	07/19/2018			07/19/2018 15:45	Tanya Welborn	2009386
SM 2320 B-97	07/19/2018			07/24/2018 02:58	Dale L. Simmons	2009386
SM 2540 C-97	07/19/2018			07/20/2018 16:46	William L. Brown IV	2009386
SM 2540 D-97	07/19/2018			07/20/2018 17:00	William L. Brown IV	2009386
SM 4500 F-C-97	07/19/2018			07/24/2018 02:58	Dale L. Simmons	2009386
SM 5310 B-00	07/19/2018			07/24/2018 02:57	Megan Treadwell	2009387