

Chemical Analysis Report

TLH-ROC-2018-02-28-01

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

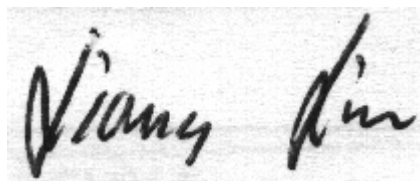
Event Description: **A-b/t/m**
Request ID: **RQ-2018-02-26-64**
Customer: **TLH-ROC**
Project ID: **SMP**

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.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-MAR-2018 17:19

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Lexington Creek @ John Hancock Dr.

Collection Date/Time: 02/28/2018 09:35

Field ID: G1TLHR0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970707	EPA 180.1 Rev. 2.0	Turbidity	7.3	A	NTU	P340808	
	EPA 300.0 Rev. 2.1	Chloride	7.8		mg Cl/L	P340950	
	SM 2120 B	Color (true)	42	A	PCU	P340813	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P341244	
	SM 2540 C-97	TDS	50		mg/L	P341150	
	SM 2540 D-97	TSS	5	I	mg/L	P340933	
	SM 4500 F-C-97	Fluoride	0.080	I	mg F/L	P341247	
1970711	EPA 350.1 Rev. 2.0	Ammonia-N	0.091		mg N/L	P340975	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.42		mg N/L	P340826	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P340885	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P340794	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P340978	
1970715	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.099		mg P/L	P340820	
1970731	EPA 8321B	2,4-D	0.0020	U	ug/L	P340489	
		Sucralose**	0.34		ug/L	P340408	
		Bentazon	8.0E-04	U	ug/L	P340489	MS
		MCP	0.0020	U	ug/L	P340489	MS
		Triclopyr**	0.0040	U	ug/L	P340489	
		Imidacloprid	0.039		ug/L	P340489	MS
		Diuron	0.0020	U	ug/L	P340489	
		Primidone**	0.0040	U	ug/L	P340489	
		Linuron	0.0040	U	ug/L	P340489	
		Acetaminophen**	0.49		ug/L	P340489	
		Fenuron	0.0080	U	ug/L	P340489	
		Imazapyr**	0.0040	U	ug/L	P340489	
		Carbamazepine**	4.0E-04	U	ug/L	P340489	
		Fluridone**	0.0031	I	ug/L	P340489	

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: Lake Overstreet Drain @ N Meridian Rd.

Collection Date/Time: 02/28/2018 10:05

Field ID: G1TLHR0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970708	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P340808	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P340950	
	SM 2120 B	Color (true)	37		PCU	P340813	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P341244	
	SM 2540 C-97	TDS	79		mg/L	P341150	
	SM 2540 D-97	TSS	2	U	mg/L	P340933	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P341247	
1970712	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P340975	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P340826	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P340885	

Field ID: G1TLHR0069

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970712	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P340794	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P340978	
1970716	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P340820	
1970732	EPA 8321B	2,4-D	0.0051	I	ug/L	P340489	
		Sucralose**	0.12		ug/L	P340408	
		Bentazon	8.0E-04	U	ug/L	P340489	MS
		MCP	0.0064	I	ug/L	P340489	MS
		Triclopyr**	0.0040	U	ug/L	P340489	
		Imidacloprid	0.0083		ug/L	P340489	MS
		Diuron	0.0022	I	ug/L	P340489	
		Primidone**	0.0040	U	ug/L	P340489	
		Linuron	0.0040	U	ug/L	P340489	
		Acetaminophen**	0.0080	U	ug/L	P340489	
		Fenuron	0.010	I	ug/L	P340489	
		Imazapyr**	0.049		ug/L	P340489	
		Carbamazepine**	4.0E-04	U	ug/L	P340489	
		Fluridone**	0.0049		ug/L	P340489	

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: BEAR CREEK @ SR267

Collection Date/Time: 02/28/2018 10:55

Field ID: G1TLHR0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970709	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P340808	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P340950	
	SM 2120 B	Color (true)	46		PCU	P340813	
	SM 2320 B-97	Total Alkalinity	4.2		mg CaCO3/L	P341244	
	SM 2540 C-97	TDS	31		mg/L	P341150	
	SM 2540 D-97	TSS	5	I	mg/L	P340933	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P341247	
1970713	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P340975	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P340826	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P340885	
	EPA 365.1 Rev. 2.0	Total-P	0.091		mg P/L	P340794	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P340978	
1970717	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P340820	
1970733	EPA 8321B	2,4-D	0.0020	U	ug/L	P340489	
		Sucralose**	0.017	I	ug/L	P340408	
		Bentazon	8.0E-04	U	ug/L	P340489	MS
		MCP	0.0020	U	ug/L	P340489	MS
		Triclopyr**	0.0040	U	ug/L	P340489	
		Imidacloprid	0.0020	U	ug/L	P340489	MS
		Diuron	0.0020	U	ug/L	P340489	
		Primidone**	0.0040	U	ug/L	P340489	

Field ID: G1TLHR0052

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970733	EPA 8321B	Linuron	0.0040	U	ug/L	P340489	
		Acetaminophen**	0.0080	U	ug/L	P340489	
		Fenuron	0.0080	U	ug/L	P340489	
		Imazapyr**	0.0077	I	ug/L	P340489	
		Carbamazepine**	4.0E-04	U	ug/L	P340489	
		Fluridone**	8.0E-04	U	ug/L	P340489	

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: OCKLAWAHA CREEK @ SR267

Collection Date/Time: 02/28/2018 11:15

Field ID: G1TLHR0053

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1970710	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P340808	
	EPA 300.0 Rev. 2.1	Chloride	2.3		mg Cl/L	P340950	
	SM 2120 B	Color (true)	160		PCU	P340813	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P341244	
	SM 2540 C-97	TDS	35		mg/L	P341150	
	SM 2540 D-97	TSS	2	I	mg/L	P340933	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P341247	
1970714	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P340975	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P340826	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.080		mg N/L	P340885	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P340794	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P340978	
1970718	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P340820	
1970734	EPA 8321B	2,4-D	0.0020	U	ug/L	P340489	
		Sucralose**	0.010	U	ug/L	P340408	
		Bentazon	8.0E-04	U	ug/L	P340489	MS
		MCP	0.0020	U	ug/L	P340489	MS
		Triclopyr**	0.0040	U	ug/L	P340489	
		Imidacloprid	0.0020	U	ug/L	P340489	MS
		Diuron	0.0020	U	ug/L	P340489	
		Primidone**	0.0040	U	ug/L	P340489	
		Linuron	0.0040	U	ug/L	P340489	
		Acetaminophen**	0.0080	U	ug/L	P340489	
		Fenuron	0.0080	U	ug/L	P340489	
		Imazapyr**	0.013	I	ug/L	P340489	
		Carbamazepine**	4.0E-04	U	ug/L	P340489	
		Fluridone**	8.0E-04	U	ug/L	P340489	

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340808

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340950

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340975

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340826

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340885

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340794

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340820

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

Reference Method: EPA 8321B
Batch ID: P340408

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P340489

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: P340489

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.0080	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
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P340813

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P341244

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

Reference Method: SM 2540 C-97
Batch ID: P341150

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P340933

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P341247

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340978

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

Quality Assurance Report Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P340950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340975

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P340826

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P340885

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P340794

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P340820

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

Reference Method: EPA 8321B
 Batch ID: P340408

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	113		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P340489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	66.1		P	40 - 150
Acetaminophen	94.3		P	30 - 150
Bentazon	68.2		P	30 - 150
Carbamazepine	79.2		P	40 - 150
Diuron	63.5		P	40 - 150
Fenuron	97.2		P	40 - 150
Fluridone	79.1		P	40 - 150
Imazapyr	72.2		P	40 - 150
Imidacloprid	88.2		P	40 - 160
Linuron	73.0		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
 Batch ID: P340489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
MCP	66.7		P	40 - 150
Primidone	94.3		P	40 - 150
Triclopyr	65.3		P	40 - 150

Reference Method: SM 2320 B-97
 Batch ID: P341244

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

Reference Method: SM 4500 F-C-97
 Batch ID: P341247

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.6		P	92 - 103

Reference Method: SM 5310 B-00
 Batch ID: P340978

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P340950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970708	Chloride	93.5		P	90 - 110
1970709	Chloride	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P340975

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970244	Ammonia-N	91.9	90.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P340826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970712	Kjeldahl Nitrogen	101	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P340885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970711	NO ₂ NO ₃ -N	103	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340794

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970712	Total-P	98.2	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340820

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970715	O-Phosphate-P	96.7	98.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P340408

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969523	Sucralose	122	127	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P340489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969855	2,4-D	52.7	53.4	P/P	40 - 150
1969855	Acetaminophen	130	147	P/P	30 - 150
1969855	Bentazon	22.0	21.7	F/F	30 - 150
1969855	Carbamazepine	71.6	85.5	P/P	40 - 150
1969855	Diuron	66.2	65.8	P/P	40 - 150
1969855	Fenuron	86.4	80.3	P/P	40 - 150
1969855	Fluridone	73.7	68.8	P/P	40 - 150
1969855	Imazapyr	61.0	60.6	P/P	40 - 150
1969855	Imidacloprid	203	208	F/F	40 - 160
1969855	Linuron	75.1	82.8	P/P	40 - 150
1969855	MCP	37.5	36.4	F/F	40 - 150
1969855	Primidone	103	101	P/P	40 - 150
1969855	Triclopyr	45.8	47.4	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P341247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1971272	Fluoride	95.1	96.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P340978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1970711	Organic Carbon	98.6	98.4	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970707	Turbidity	2.74	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970708	Chloride	2.04	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340975

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970244	Ammonia-N	0.839	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970712	Kjeldahl Nitrogen	2.76	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970711	NO2NO3-N	0.647	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340794

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970712	Total-P	4.94	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970715	O-Phosphate-P	0.763	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P340408

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969523	Sucralose	3.42	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P340489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969855	2,4-D	1.27	Spike	P	0 - 30
1969855	Acetaminophen	12.1	Spike	P	0 - 30
1969855	Bentazon	1.40	Spike	P	0 - 30
1969855	Carbamazepine	17.7	Spike	P	0 - 30
1969855	Diuron	0.546	Spike	P	0 - 30
1969855	Fenuron	7.22	Spike	P	0 - 30
1969855	Fluridone	6.84	Spike	P	0 - 30
1969855	Imazapyr	0.625	Spike	P	0 - 30
1969855	Imidacloprid	2.45	Spike	P	0 - 30
1969855	Linuron	9.77	Spike	P	0 - 30
1969855	MCPD	2.95	Spike	P	0 - 30
1969855	Primidone	2.38	Spike	P	0 - 30
1969855	Triclopyr	3.30	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P340813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970707	Color (true)	2.18	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P341244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1971272	Total Alkalinity	0.0945	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P341150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970535	TDS	1.98	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P341247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1971272	Fluoride	0.480	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P340978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1970711	Organic Carbon	0.224	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: 1970731
Field Sample ID: G1TLHR0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	40.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	120	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.6	P	30 - 160
EPA 8321B	Diuron-d6	68.1	P	30 - 160
EPA 8321B	Primidone-d5	95.2	P	30 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160

Lab Sample ID: 1970732
Field Sample ID: G1TLHR0069

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	43.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	124	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.7	P	30 - 160
EPA 8321B	Diuron-d6	60.4	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	111	P	40 - 160

Lab Sample ID: 1970733
Field Sample ID: G1TLHR0052

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	65.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	121	P	30 - 160
EPA 8321B	Carbamazepine-d10	101	P	30 - 160
EPA 8321B	Diuron-d6	73.9	P	30 - 160
EPA 8321B	Primidone-d5	112	P	30 - 160
EPA 8321B	Sucralose-d6	133	P	40 - 160

Lab Sample ID: 1970734
Field Sample ID: G1TLHR0053

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	73.0	P	30 - 160
EPA 8321B	Acetaminophen-d4	140	P	30 - 160
EPA 8321B	Carbamazepine-d10	118	P	30 - 160
EPA 8321B	Diuron-d6	76.2	P	30 - 160
EPA 8321B	Primidone-d5	115	P	30 - 160
EPA 8321B	Sucralose-d6	144	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A82322
Included Lab Sample IDs: 1970707, 1970708, 1970709, 1970710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	99.4	P/P	90 - 110
Chloride	99.4	97.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82369

Included Lab Sample IDs: 1970707, 1970708, 1970709, 1970710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A82370

Included Lab Sample IDs: 1970707, 1970708, 1970709, 1970710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	100	P/P	85 - 115
Color (true)	101	99.6	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82372

Included Lab Sample IDs: 1970715, 1970716, 1970717, 1970718

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	99.3	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82393

Included Lab Sample IDs: 1970711, 1970712, 1970713

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82396

Included Lab Sample IDs: 1970714

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82408

Included Lab Sample IDs: 1970711, 1970712, 1970713, 1970714

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

Reference Method: EPA 8321B

Run ID: A82414

Included Lab Sample IDs: 1970731, 1970732, 1970733, 1970734

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	107	108	P/P	60 - 150
Sucralose	109	107	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82431

Included Lab Sample IDs: 1970711, 1970712, 1970713, 1970714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82435

Included Lab Sample IDs: 1970711, 1970712, 1970713, 1970714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	96.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82436

Included Lab Sample IDs: 1970731, 1970732, 1970733, 1970734

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	93.7	96.4	P/P	50 - 150
2,4-D	96.4	102	P/P	50 - 150
Acetaminophen	100	109	P/P	60 - 150
Bentazon	102	106	P/P	50 - 150
Bentazon	102	102	P/P	50 - 150
Carbamazepine	86.7	110	P/P	60 - 150
Diuron	110	109	P/P	60 - 150
Fenuron	106	103	P/P	60 - 150
Fluridone	116	124	P/P	60 - 160
Imazapyr	94.9	96.2	P/P	50 - 150
Imidacloprid	95.6	104	P/P	60 - 150
Linuron	108	106	P/P	60 - 150
MCPP	92.5	86.9	P/P	50 - 150
MCPP	98.0	92.5	P/P	50 - 150
Primidone	101	109	P/P	60 - 150
Triclopyr	105	88.8	P/P	50 - 150
Triclopyr	88.8	85.4	P/P	50 - 150

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82456

Included Lab Sample IDs: 1970711, 1970712, 1970713, 1970714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	104	P/P	90 - 110
Kjeldahl Nitrogen	99.5	98.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A82513

Included Lab Sample IDs: 1970707, 1970708, 1970709, 1970710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.2	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A82513

Included Lab Sample IDs: 1970707, 1970708, 1970709, 1970710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	109	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				2.74	
EPA 300.0 Rev. 2.1	Chloride	95.7	93.5 97.8		2.04	
EPA 350.1 Rev. 2.0	Ammonia-N	94.3	91.9 90.5			0.839
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.2	101 98.0			2.76
EPA 353.2 Rev. 2.0	NO2NO3-N	103	103 104			0.647
EPA 365.1 Rev. 2.0	Total-P	107	98.2 105			4.94
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.3	96.7 98.2			0.763
EPA 8321B	2,4-D	66.1	52.7 53.4			1.27
	Acetaminophen	94.3	130 147			12.1
	Bentazon	68.2	22.0 21.7			1.40
	Carbamazepine	79.2	85.5 71.6			17.7
	Diuron	63.5	65.8 66.2			0.546
	Fenuron	97.2	80.3 86.4			7.22
	Fluridone	79.1	68.8 73.7			6.84
	Imazapyr	72.2	60.6 61.0			0.625
	Imidacloprid	88.2	208 203			2.45
	Linuron	73.0	82.8 75.1			9.77
	MCPPP	66.7	37.5 36.4			2.95
	Primidone	94.3	101 103			2.38
	Sucralose	113	122 127			3.42
	Triclopyr	65.3	45.8 47.4			3.30
SM 2120 B	Color (true)				2.18	
SM 2320 B-97	Total Alkalinity	102			0.0945	
SM 2540 C-97	TDS				1.98	
SM 4500 F-C-97	Fluoride	93.6	95.1 96.0			0.480
SM 5310 B-00	Organic Carbon	94.9	98.6 98.4			0.224

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1970707, 1970708, 1970709, 1970710
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1970707, 1970708, 1970709, 1970710
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1970711, 1970712, 1970713, 1970714
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1970711, 1970712, 1970713, 1970714

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1970711, 1970712, 1970713, 1970714
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1970711, 1970712, 1970713, 1970714
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1970715, 1970716, 1970717, 1970718
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1970731, 1970732, 1970733, 1970734
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1970731, 1970732, 1970733, 1970734
SM 2120 B / E31780	True Color measured at 450 nm	1970707, 1970708, 1970709, 1970710
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1970707, 1970708, 1970709, 1970710
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1970707, 1970708, 1970709, 1970710
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1970707, 1970708, 1970709, 1970710
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1970707, 1970708, 1970709, 1970710
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1970711, 1970712, 1970713, 1970714

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	02/28/2018			03/01/2018 15:23	DeAsia Armster	1970707, 1970708, 1970709, 1970710
EPA 300.0 Rev. 2.1	02/28/2018			03/01/2018	Julia Storbeck	1970707, 1970708, 1970709
	02/28/2018			03/02/2018	Julia Storbeck	1970710
EPA 350.1 Rev. 2.0	02/28/2018			03/05/2018	Ping Hua	1970711, 1970712, 1970713, 1970714
EPA 351.2 Rev. 2.0	02/28/2018	03/02/2018	Adrian Shelby	03/06/2018	Joseph Suarez	1970711, 1970712, 1970713, 1970714
EPA 353.2 Rev. 2.0	02/28/2018			03/02/2018	Lauren Bottorf	1970711, 1970712, 1970713, 1970714
EPA 365.1 Rev. 2.0	02/28/2018	03/01/2018	Sima Feizi	03/02/2018	Lipi Saha	1970711, 1970712, 1970713, 1970714
EPA 365.1 Rev. 2.0 dissolved	02/28/2018			03/01/2018 15:18	Megan Treadwell	1970715
	02/28/2018			03/01/2018 15:46	Megan Treadwell	1970716
	02/28/2018			03/01/2018 15:47	Megan Treadwell	1970717
	02/28/2018			03/01/2018 15:48	Megan Treadwell	1970718
EPA 8321B	02/28/2018	03/01/2018	Hoor Shaik	03/02/2018	Julie Michelle Frank	1970731, 1970732, 1970733, 1970734
	02/28/2018	03/02/2018	Julie Michelle Frank	03/03/2018	Juyoung Kim	1970731, 1970732, 1970733, 1970734
SM 2120 B	02/28/2018			03/01/2018 14:50	Tanya Welborn	1970707
	02/28/2018			03/01/2018 14:51	Tanya Welborn	1970708, 1970709
	02/28/2018			03/01/2018 15:34	Tanya Welborn	1970710
SM 2320 B-97	02/28/2018			03/09/2018	Dale L. Simmons	1970707, 1970708, 1970709, 1970710
SM 2540 C-97	02/28/2018			03/02/2018	DeAsia Armster	1970707, 1970708, 1970709, 1970710
SM 2540 D-97	02/28/2018			03/02/2018	DeAsia Armster	1970707, 1970708, 1970709, 1970710
SM 4500 F-C-97	02/28/2018			03/09/2018	Dale L. Simmons	1970707, 1970708, 1970709, 1970710
SM 5310 B-00	02/28/2018			03/05/2018	Megan Treadwell	1970711, 1970712, 1970713, 1970714