

Chemical Analysis Report

SW-DIST-2018-04-12-02

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

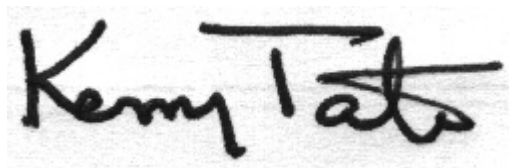
Event Description: **1443E&F b kit and entero**
Request ID: **RQ-2018-04-09-14**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Sarah Meyer

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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 03-MAY-2018 08:19

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long, sweeping underline.

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: Hillsborough River @ Rowlett Park Dr

Collection Date/Time: 04/11/2018 10:40

Field ID: G2SW0035

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984023	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P343336	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P343952	
	SM 2540 D-97	TSS	2	U	mg/L	P343520	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P343956	
1984025	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P343689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P343422	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P343571	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P343537	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P343737	
1984027	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P343296	

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: Hillsborough River @ I-275 Bridge

Collection Date/Time: 04/11/2018 11:22

Field ID: G2SW0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984024	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P343336	
	SM 2320 B-97	Total Alkalinity	150		mg CaCO3/L	P343952	
	SM 2540 D-97	TSS	2	I	mg/L	P343521	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P343956	
1984026	EPA 350.1 Rev. 2.0	Ammonia-N	0.078		mg N/L	P343689	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P343422	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P343571	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P343537	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P343560	
1984028	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P343296	

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: Hillsborough River @ I-275 Bridge

Collection Date/Time: 04/11/2018 11:22

Field ID: G2SW0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984034	EPA 8321B	2,4-D	0.016		ug/L	P343184	
		Bentazon	0.0054		ug/L	P343184	
		MCP	0.0020	U	ug/L	P343184	
		Triclopyr**	0.0040	U	ug/L	P343184	
		Imidacloprid	0.024		ug/L	P343184	MS
		Diuron	0.0049	I	ug/L	P343184	
		Pyraclostrobin**	0.0020	U	ug/L	P343184	
		Primidone**	0.0040	U	ug/L	P343184	
		Linuron	0.0040	U	ug/L	P343184	
		Acetaminophen**	0.014	I	ug/L	P343184	
		Fenuron	0.016	U	ug/L	P343184	

Field ID: G2SW0034

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1984034	EPA 8321B	Imazapyr**	0.0098	I	ug/L	P343184	
		Carbamazepine**	8.8E-04	I	ug/L	P343184	
		Fluridone**	0.0018	I	ug/L	P343184	
		Hydrocodone**	8.0E-04	U	ug/L	P343184	
		Sucralose**	0.23	I	ug/L	P343272	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P343336

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P343689

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P343422

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P343571

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P343537

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P343296

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

Reference Method: EPA 8321B
 Batch ID: P343184

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P343184

Component	Result	Code	Units
Fenuron	0.016	U	ug/L
Fluridone	8.0E-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: P343272

Component	Result	Code	Units
Sucralose	0.10	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P343952

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

Reference Method: SM 2540 D-97
Batch ID: P343520

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343521

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343956

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343560

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

Reference Method: SM 5310 B-00
Batch ID: P343737

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343422

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: P343571

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343537

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343296

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

Reference Method: EPA 8321B
Batch ID: P343184

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.5		P	40 - 150
Acetaminophen	91.0		P	30 - 150
Bentazon	68.4		P	30 - 150
Carbamazepine	80.4		P	40 - 150
Diuron	63.8		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	61.9		P	40 - 150
Hydrocodone	103		P	40 - 150
Imazapyr	65.5		P	40 - 150
Imidacloprid	104		P	40 - 160
Linuron	72.0		P	40 - 150
MCPP	64.0		P	40 - 150
Primidone	106		P	40 - 150
Pyraclostrobin	69.2		P	40 - 150
Triclopyr	63.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343272

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P343952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343956

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

Reference Method: SM 5310 B-00
Batch ID: P343560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P343737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983923	Ammonia-N	97.2	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983922	Kjeldahl Nitrogen	97.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984047	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984025	Total-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
---------------	-----------	---------	---------	-----------	----------------

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983949	O-Phosphate-P	99.0	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P343184

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983224	2,4-D	130	136	P/P	40 - 150
1983224	Acetaminophen	122	128	P/P	30 - 150
1983224	Bentazon	41.1	43.3	P/P	30 - 150
1983224	Carbamazepine	103	103	P/P	40 - 150
1983224	Diuron	79.4	73.3	P/P	40 - 150
1983224	Fenuron	111	108	P/P	40 - 150
1983224	Fluridone	61.8	70.7	P/P	40 - 150
1983224	Hydrocodone	147	141	P/P	40 - 150
1983224	Imazapyr	89.8	74.8	P/P	40 - 150
1983224	Imidacloprid	248	245	F/F	40 - 160
1983224	Linuron	89.4	88.5	P/P	40 - 150
1983224	MCCP	96.0	99.7	P/P	40 - 150
1983224	Primidone	130	122	P/P	40 - 150
1983224	Pyraclostrobin	75.5	75.8	P/P	40 - 150
1983224	Triclopyr	92.0	96.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P343272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983451	Sucralose	60.7	59.3	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P343956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984236	Fluoride	95.2	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1984026	Organic Carbon	95.2	95.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P343737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983923	Organic Carbon	95.6	96.2	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984235	Turbidity	1.40	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983923	Ammonia-N	0.0974	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983922	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984047	NO2NO3-N	0.388	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984025	Total-P	0.357	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983949	O-Phosphate-P	0.623	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P343184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983224	2,4-D	4.71	Spike	P	0 - 30
1983224	Acetaminophen	4.60	Spike	P	0 - 30
1983224	Bentazon	5.22	Spike	P	0 - 30
1983224	Carbamazepine	0.542	Spike	P	0 - 30
1983224	Diuron	8.02	Spike	P	0 - 30
1983224	Fenuron	2.41	Spike	P	0 - 30
1983224	Fluridone	13.5	Spike	P	0 - 30
1983224	Hydrocodone	4.30	Spike	P	0 - 30
1983224	Imazapyr	15.4	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P343184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983224	Imidacloprid	1.39	Spike	P	0 - 30
1983224	Linuron	0.996	Spike	P	0 - 30
1983224	MCP	3.82	Spike	P	0 - 30
1983224	Primidone	6.33	Spike	P	0 - 30
1983224	Pyraclostrobin	0.414	Spike	P	0 - 30
1983224	Triclopyr	4.67	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P343272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983451	Sucralose	0.882	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P343952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984236	Total Alkalinity	0.123	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P343956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984236	Fluoride	0.514	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984026	Organic Carbon	0.253	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P343737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983923	Organic Carbon	0.371	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

Quality Assurance Report Surrogates

Lab Sample ID: 1984034
Field Sample ID: G2SW0034

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	83.3	P	30 - 160
EPA 8321B	2,4-D-d3	83.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Acetaminophen-d4	106	P	30 - 160
EPA 8321B	Carbamazepine-d10	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	103	P	30 - 160
EPA 8321B	Diuron-d6	68.3	P	30 - 160
EPA 8321B	Diuron-d6	68.3	P	30 - 160
EPA 8321B	Primidone-d5	92.5	P	30 - 160
EPA 8321B	Primidone-d5	92.5	P	30 - 160
EPA 8321B	Sucralose-d6	77.0	P	40 - 160
EPA 8321B	Sucralose-d6	77.0	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83196
Included Lab Sample IDs: 1984027, 1984028

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83212
Included Lab Sample IDs: 1984023, 1984024

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

Reference Method: EPA 8321B
Run ID: A83252
Included Lab Sample IDs: 1984034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	114	115	P/P	60 - 130

Reference Method: EPA 8321B
Run ID: A83283
Included Lab Sample IDs: 1984034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	101	91.2	P/P	50 - 150
Acetaminophen	99.1	85.0	P/P	60 - 150
Bentazon	83.8	89.2	P/P	50 - 150
Carbamazepine	102	94.0	P/P	60 - 150
Diuron	103	81.4	P/P	60 - 150
Fenuron	113	108	P/P	60 - 150
Fluridone	100	107	P/P	60 - 160
Hydrocodone	108	87.3	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A83283
Included Lab Sample IDs: 1984034

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imazapyr	72.9	65.9	P/P	50 - 150
Imidacloprid	113	106	P/P	60 - 150
Linuron	110	101	P/P	60 - 150
MCPP	106	100	P/P	50 - 150
Primidone	111	76.8	P/P	60 - 150
Pyraclostrobin	101	105	P/P	60 - 150
Triclopyr	98.1	95.3	P/P	50 - 150

Reference Method: SM 5310 B-00
Run ID: A83286
Included Lab Sample IDs: 1984026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83287
Included Lab Sample IDs: 1984025, 1984026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83295
Included Lab Sample IDs: 1984025, 1984026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83326
Included Lab Sample IDs: 1984025, 1984026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	103	103	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83342
Included Lab Sample IDs: 1984025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83365
Included Lab Sample IDs: 1984025, 1984026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	104	P/P	90 - 110
Total-P	104	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A83420

Included Lab Sample IDs: 1984023, 1984024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83420

Included Lab Sample IDs: 1984023, 1984024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.40	
EPA 350.1 Rev. 2.0	Ammonia-N	96.2	97.2 97.0			0.0974
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	97.3 100			1.94
EPA 353.2 Rev. 2.0	NO2NO3-N	101	102 102			0.388
EPA 365.1 Rev. 2.0	Total-P	103	101 102			0.357
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	99.0 100			0.623
EPA 8321B	2,4-D	78.5	130 136			4.71
	Acetaminophen	91.0	122 128			4.60
	Bentazon	68.4	41.1 43.3			5.22
	Carbamazepine	80.4	103 103			0.542
	Diuron	63.8	79.4 73.3			8.02
	Fenuron	110	111 108			2.41
	Fluridone	61.9	61.8 70.7			13.5
	Hydrocodone	103	147 141			4.30
	Imazapyr	65.5	89.8 74.8			15.4
	Imidacloprid	104	248 245			1.39
	Linuron	72.0	89.4 88.5			0.996
	MCP	64.0	96.0 99.7			3.82
	Primidone	106	130 122			6.33
	Pyraclostrobin	69.2	75.5 75.8			0.414
	Sucralose	113	60.7 59.3			0.882
	Triclopyr	63.4	92.0 96.4			4.67
SM 2320 B-97	Total Alkalinity	101			0.123	
SM 4500 F-C-97	Fluoride	96.3	95.2 95.7			0.514
SM 5310 B-00	Organic Carbon	95.8	95.2 95.6			0.253
	Organic Carbon	94.4	95.6 96.2			0.371

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
---------------------	-------------	--------------------

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1984023, 1984024
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1984025, 1984026
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1984025, 1984026
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1984025, 1984026
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1984025, 1984026
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1984027, 1984028
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1984034
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1984023, 1984024
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1984023, 1984024
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1984023, 1984024
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1984025, 1984026

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	04/12/2018			04/12/2018 17:21	William L. Brown IV	1984023, 1984024
EPA 350.1 Rev. 2.0	04/12/2018			04/17/2018 12:06	Ping Hua	1984026
	04/12/2018			04/17/2018 13:51	Ping Hua	1984025
EPA 351.2 Rev. 2.0	04/12/2018	04/16/2018 10:00	Adrian Shelby	04/17/2018 15:10	Joseph Suarez	1984025
	04/12/2018	04/16/2018 10:00	Adrian Shelby	04/17/2018 15:12	Joseph Suarez	1984026
EPA 353.2 Rev. 2.0	04/12/2018			04/17/2018 14:42	Lauren Bottorf	1984025
	04/12/2018			04/17/2018 14:43	Lauren Bottorf	1984026
EPA 365.1 Rev. 2.0	04/12/2018	04/17/2018 13:49	Sima Feizi	04/19/2018 08:58	Beverly Y. Sanders	1984025
	04/12/2018	04/17/2018 13:49	Sima Feizi	04/19/2018 09:07	Beverly Y. Sanders	1984026
EPA 365.1 Rev. 2.0 dissolved	04/12/2018			04/12/2018 14:37	Megan Treadwell	1984027
	04/12/2018			04/12/2018 14:57	Megan Treadwell	1984028
EPA 8321B	04/12/2018	04/13/2018 10:00	Hoor Shaik	04/14/2018 15:49	Julie Michelle Frank	1984034
	04/12/2018	04/13/2018 10:00	Hoor Shaik	04/15/2018 07:23	Julie Michelle Frank	1984034
	04/12/2018	04/13/2018 12:00	Hoor Shaik	04/14/2018 00:51	S. M. Reddy	1984034
SM 2320 B-97	04/12/2018			04/24/2018 09:15	Dale L. Simmons	1984023
	04/12/2018			04/24/2018 09:26	Dale L. Simmons	1984024
SM 2540 D-97	04/12/2018			04/13/2018 13:20	DeAsia Armster	1984023, 1984024
SM 4500 F-C-97	04/12/2018			04/24/2018 09:15	Dale L. Simmons	1984023
	04/12/2018			04/24/2018 09:26	Dale L. Simmons	1984024
SM 5310 B-00	04/12/2018			04/16/2018 14:53	Megan Treadwell	1984026
	04/12/2018			04/18/2018 21:37	Megan Treadwell	1984025