

Chemical Analysis Report

CEN-DIST-2017-10-24-02

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

Event Description: **Ellen / Concord / Lil Wekiva (west)**

Request ID: **RQ-2017-10-23-27**

Customer: **CEN-DIST**

Project ID: **SMP**

Send Reports to:

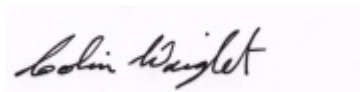
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Colin Wright, Program Administrator

Date Certified: 21-NOV-2017 15:08

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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: LITTLE WEKIVA WEST @ 50M US OF NORTHWESTERN

Collection Date/Time: 10/23/2017 10:30

Field ID: G2CE0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939488	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P333959	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P333984	
		Sulfate	8.9		mg SO4/L	P333987	
	SM 2120 B	Color (true)	65		PCU	P333951	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P334078	
	SM 2540 C-97	TDS	132		mg/L	P334385	
	SM 2540 D-97	TSS	4	I	mg/L	P334374	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P334081	
1939489	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P334263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P334627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P334293	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P334199	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P334510	
1939490	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P333955	
1939496	EPA 8321B	Sucralose**	0.66		ug/L	P334171	MS
	USGS O-2060-01	2,4-D	0.032	Q	ug/L	P335524	
		Diuron	0.0055		ug/L	P333766	
		Fenuron	0.0080	UQ	ug/L	P335524	
		Imidacloprid	0.022		ug/L	P333766	MS
		Bentazon	0.064	Q	ug/L	P335524	
		Linuron	0.0040	U	ug/L	P333766	
		Acetaminophen**	0.0080	U	ug/L	P333766	
		MCP	0.0020	UQ	ug/L	P335524	
		Carbamazepine**	0.0022	Q	ug/L	P335524	
		Triclopyr**	0.0040	UQ	ug/L	P335524	
		Primidone**	0.0049	I	ug/L	P333766	
		Fluridone**	0.18		ug/L	P333766	

Ref. Method and Comment:

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

USGS O-2060-01: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

USGS O-2060-01: MS accuracy for fluridone could not be assessed due to high concentration of parameter in the spiked sample. Refer to the narrative for an explanation of QC Codes. Carbamazepine and Fenuron: Sample required re-extraction beyond normal holding time due to reagent performance inconsistencies.

Sample Location: LAKE ELLEN @ CENTER

Collection Date/Time: 10/23/2017 11:28

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939482	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P333959	
	EPA 300.0 Rev. 2.1	Chloride	15	A	mg Cl/L	P333984	
		Sulfate	12		mg SO4/L	P333987	
	SM 2120 B	Color (true)	37	A	PCU	P333951	
	SM 2320 B-97	Total Alkalinity	9.1		mg CaCO3/L	P334078	
	SM 2540 C-97	TDS	62		mg/L	P334385	
	SM 2540 D-97	TSS	2	I	mg/L	P334374	

Field ID: G2CE0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939482	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P334081	
1939484	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P334263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P334627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P334292	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P334199	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P334510	
1939486	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P333955	

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 CONCORD @ CENTER

Collection Date/Time: 10/23/2017 11:52

Field ID: G2CE0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1939483	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P333959	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P333984	
		Sulfate	6.5		mg SO4/L	P333987	
	SM 2120 B	Color (true)	16		PCU	P333951	
	SM 2320 B-97	Total Alkalinity	68		mg CaCO3/L	P334078	
	SM 2540 C-97	TDS	95		mg/L	P334385	
	SM 2540 D-97	TSS	6	I	mg/L	P334374	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P334081	
1939485	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P334263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P334627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P334293	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P334199	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P334510	
1939487	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P333955	

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: P333959

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P333984

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333987

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334263

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334627

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334292

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334293

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334199

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333955

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

Reference Method: EPA 8321B
Batch ID: P334171

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P333951

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P334078

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P334385

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P334374

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P334081

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P334510

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

Reference Method: USGS O-2060-01
Batch ID: P333766

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

Reference Method: USGS O-2060-01
Batch ID: P335524

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
MCP	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/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: P333984

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333987

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	109		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334263

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334292

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334293

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334199

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333955

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

Reference Method: EPA 8321B
Batch ID: P334171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	94.2		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P334078

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

Reference Method: SM 4500 F-C-97
Batch ID: P334081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P334510

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

Reference Method: USGS O-2060-01
Batch ID: P333766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	80.5		P	30 - 150
Diuron	57.6		P	40 - 150
Fluridone	103		P	40 - 150
Imidacloprid	105		P	40 - 160
Linuron	111		P	40 - 150
Primidone	102		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P335524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.0		P	40 - 150
Bentazon	82.6		P	30 - 150
Carbamazepine	101		P	40 - 150
Fenuron	98.2		P	40 - 150
MCPY	56.7		P	40 - 150
Triclopyr	61.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939482	Chloride	105		P	90 - 110
1939641	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P333987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939639	Sulfate	110		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939640	Sulfate	109		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P334263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938707	Ammonia-N	107	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P334627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939485	Kjeldahl Nitrogen	98.3	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P334292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939382	NO2NO3-N	101	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P334293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939485	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P334199

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939484	Total-P	100	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P333955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939487	O-Phosphate-P	94.8	101	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P334171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939052	Sucralose	36.0	37.6	F/F	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P334081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939477	Fluoride	96.1	96.6	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P334510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939454	Organic Carbon	94.3	95.4	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P333766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1938977	Acetaminophen	95.0	107	P/P	30 - 150
1938977	Diuron	72.4	72.9	P/P	40 - 150
1938977	Imidacloprid	225	233	F/F	40 - 160
1938977	Linuron	97.9	103	P/P	40 - 150
1938977	Primidone	97.8	107	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P335524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1939073	2,4-D	57.5	55.7	P/P	40 - 150
1939073	Bentazon	61.8	56.7	P/P	30 - 150
1939073	Carbamazepine	75.4	72.0	P/P	40 - 150
1939073	Fenuron	80.2	70.6	P/P	40 - 150
1939073	MCPD	47.1	40.2	P/P	40 - 150
1939073	Triclopyr	45.6	43.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P333959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939458	Turbidity	0.524	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939482	Chloride	0.620	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P333987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939640	Sulfate	1.05	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938707	Ammonia-N	2.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939485	Kjeldahl Nitrogen	1.81	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939382	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939485	NO2NO3-N	0.952	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334199

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939484	Total-P	8.78	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P333955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939487	O-Phosphate-P	6.43	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P334171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939052	Sucralose	4.46	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P333951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939482	Color (true)	2.73	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P334078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939477	Total Alkalinity	0.444	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P334385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939381	TDS	5.50	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P334081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939477	Fluoride	0.472	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P334510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939454	Organic Carbon	0.879	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P333766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1938977	Acetaminophen	11.5	Spike	P	0 - 30
1938977	Diuron	0.533	Spike	P	0 - 30
1938977	Fluridone	7.15	Spike	P	0 - 30
1938977	Imidacloprid	2.69	Spike	P	0 - 30
1938977	Linuron	5.06	Spike	P	0 - 30
1938977	Primidone	7.79	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P335524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1939073	2,4-D	3.20	Spike	P	0 - 30
1939073	Bentazon	8.59	Spike	P	0 - 30
1939073	Carbamazepine	4.70	Spike	P	0 - 30
1939073	Fenuron	12.7	Spike	P	0 - 30
1939073	MCP	15.7	Spike	P	0 - 30
1939073	Triclopyr	3.84	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Lab Sample ID: 1939496
Field Sample ID: G2CE0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	113	P	30 - 160
EPA 8321B	Carbamazepine-d10	91.1	P	30 - 160
EPA 8321B	Diuron-d6	87.9	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	66.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	63.9	P	30 - 160
USGS O-2060-01	Acetaminophen-d4	113	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	91.1	P	30 - 160
USGS O-2060-01	Diuron-d6	87.9	P	30 - 160
USGS O-2060-01	Primidone-d5	111	P	30 - 160
USGS O-2060-01	Sucralose-d6	66.6	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79769
Included Lab Sample IDs: 1939486, 1939487, 1939490

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	98.5	P/P	90 - 110
O-Phosphate-P	98.1	102	P/P	90 - 110
O-Phosphate-P	98.5	97.3	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A79770
Included Lab Sample IDs: 1939482, 1939483, 1939488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	99.6	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A79771
Included Lab Sample IDs: 1939482, 1939483, 1939488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A79775
Included Lab Sample IDs: 1939482, 1939483, 1939488

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

Reference Method: SM 2320 B-97
Run ID: A79813
Included Lab Sample IDs: 1939482, 1939483, 1939488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A79813

Included Lab Sample IDs: 1939482, 1939483, 1939488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79878

Included Lab Sample IDs: 1939484, 1939485, 1939489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	99.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79881

Included Lab Sample IDs: 1939489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79892

Included Lab Sample IDs: 1939484, 1939485, 1939489

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79900

Included Lab Sample IDs: 1939484, 1939485

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

Reference Method: USGS O-2060-01

Run ID: A79905

Included Lab Sample IDs: 1939496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	118	112	P/P	60 - 150
Diuron	112	115	P/P	60 - 150
Fluridone	120	122	P/P	60 - 160
Imidacloprid	103	110	P/P	60 - 150
Linuron	118	122	P/P	60 - 150
Primidone	118	114	P/P	60 - 150

Reference Method: EPA 8321B

Run ID: A79950

Included Lab Sample IDs: 1939496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	94.4	94.3	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A79974

Included Lab Sample IDs: 1939484, 1939485, 1939489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.0	P/P	90 - 110
Organic Carbon	97.0	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80098

Included Lab Sample IDs: 1939484, 1939485, 1939489

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A80386

Included Lab Sample IDs: 1939496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	102	102	P/P	50 - 150
Bentazon	125	122	P/P	50 - 150
Carbamazepine	127	126	P/P	60 - 150
Fenuron	126	125	P/P	60 - 150
MCP	102	104	P/P	50 - 150
Triclopyr	101	95.6	P/P	50 - 150

* 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						0.524	
EPA 300.0 Rev. 2.1	Chloride	104		105	104		0.620	
	Sulfate	109		109	110		1.05	
EPA 350.1 Rev. 2.0	Ammonia-N	103		107	104			2.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.5		98.3	95.6			1.81
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103		101	99.5			1.50
	NO ₂ NO ₃ -N	104		106	104			0.952
EPA 365.1 Rev. 2.0	Total-P	105		100	110			8.78
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101		94.8	101			6.43
EPA 8321B	Sucralose	94.2		36.0	37.6			4.46
SM 2120 B	Color (true)						2.73	
SM 2320 B-97	Total Alkalinity	102					0.444	
SM 2540 C-97	TDS						5.50	
SM 4500 F-C-97	Fluoride	95.5		96.1	96.6			0.472
SM 5310 B-00	Organic Carbon	95.6		94.3	95.4			0.879
USGS O-2060-01	2,4-D	78.0		57.5	55.7			3.20
	Acetaminophen	80.5		95.0	107			11.5
	Bentazon	82.6		61.8	56.7			8.59

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
USGS O-2060-01	Carbamazepine	101	75.4	72.0		4.70
	Diuron	57.6	72.4	72.9		0.533
	Fenuron	98.2	80.2	70.6		12.7
	Fluridone	103				7.15
	Imidacloprid	105	225	233		2.69
	Linuron	111	97.9	103		5.06
	MCPP	56.7	47.1	40.2		15.7
	Primidone	102	97.8	107		7.79
	Triclopyr	61.8	45.6	43.9		3.84

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1939482, 1939483, 1939488
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1939482, 1939483, 1939488
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1939482, 1939483, 1939488
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1939484, 1939485, 1939489
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1939484, 1939485, 1939489
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1939484, 1939485, 1939489
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1939484, 1939485, 1939489
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1939486, 1939487, 1939490
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1939496
SM 2120 B / E31780	True Color measured at 450 nm	1939482, 1939483, 1939488
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1939482, 1939483, 1939488
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1939482, 1939483, 1939488
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1939482, 1939483, 1939488
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1939482, 1939483, 1939488
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1939484, 1939485, 1939489
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1939496
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1939496

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	10/24/2017			10/24/2017 15:02	DeAsia Armster	1939482, 1939483, 1939488
EPA 300.0 Rev. 2.1	10/24/2017			10/25/2017	Julia Storbeck	1939482, 1939483, 1939488
	10/24/2017			10/27/2017	Irina Carbone	1939482, 1939483, 1939488
EPA 350.1 Rev. 2.0	10/24/2017			10/27/2017	Sofia Elnemr	1939484, 1939485, 1939489
EPA 351.2 Rev. 2.0	10/24/2017	11/03/2017	Adrian Shelby	11/06/2017	Joseph Suarez	1939484, 1939485, 1939489
EPA 353.2 Rev. 2.0	10/24/2017			10/30/2017	Beverly Y. Sanders	1939484, 1939485, 1939489
EPA 365.1 Rev. 2.0	10/24/2017	10/27/2017	Sima Feizi	10/30/2017	Lipi Saha	1939484, 1939485, 1939489
EPA 365.1 Rev. 2.0 dissolved	10/24/2017			10/24/2017 14:51	Megan Treadwell	1939487
	10/24/2017			10/24/2017 15:19	Megan Treadwell	1939486
	10/24/2017			10/24/2017 15:24	Megan Treadwell	1939490
EPA 8321B	10/24/2017	10/27/2017	Julie Michelle Frank	10/28/2017	Juyoung Kim	1939496
SM 2120 B	10/24/2017			10/24/2017 15:34	Tanya Welborn	1939482, 1939483
	10/24/2017			10/24/2017 15:35	Tanya Welborn	1939488
SM 2320 B-97	10/24/2017			10/26/2017	Dale L. Simmons	1939482, 1939483, 1939488
SM 2540 C-97	10/24/2017			10/25/2017	Yijie Li	1939482, 1939483, 1939488
SM 2540 D-97	10/24/2017			10/25/2017	Yijie Li	1939482, 1939483, 1939488
SM 4500 F-C-97	10/24/2017			10/26/2017	Dale L. Simmons	1939482, 1939483, 1939488
SM 5310 B-00	10/24/2017			10/31/2017	Ping Hua	1939484, 1939485, 1939489
USGS O-2060-01	10/24/2017	10/25/2017	Hoor Shaik	10/30/2017	Julie Michelle Frank	1939496
	10/24/2017	11/16/2017	Hoor Shaik	11/19/2017	Julie Michelle Frank	1939496