

Chemical Analysis Report

CEN-DIST-2017-10-05-01

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

Event Description: **Lil Wekiva River / Lil Wekiva (W) / Lk Hope**
Request ID: **RQ-2017-09-18-50**
Customer: **CEN-DIST**
Project ID: **SMP**

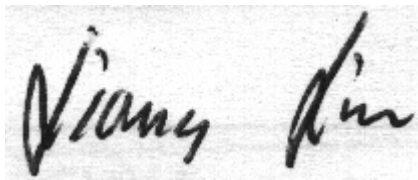
Send Reports to:
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For additional information please contact
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This Report replaces the previous Report Serial Number: 0099907

Revision certified by: Liang Lin, Environmental Administrator

Date Certified: 24-OCT-2017 14:10

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Report Comments:

Correction made to sample location from YNONNE to YVONNE.

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: LAKE YVONNE (VONNA LAKE)

Collection Date/Time: 10/04/2017 10:18

Field ID: G2CE0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934418	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P332812	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P332903	
		Sulfate	9.0		mg SO4/L	P332907	
	SM 2120 B	Color (true)	77		PCU	P332833	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P333346	
	SM 2540 C-97	TDS	123		mg/L	P333144	
	SM 2540 D-97	TSS	4	I	mg/L	P333004	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P333349	
1934420	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P333233	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P333127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333167	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P333056	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P333154	
1934422	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P332847	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LITTLE WEKIVA @ US OF SPRINGS LANDING BLVD.

Collection Date/Time: 10/04/2017 11:10

Field ID: G2CE0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934436	EPA 8321B	Sucralose**	0.74		ug/L	P332642	
	USGS O-2060-01	2,4-D	0.026		ug/L	P332643	
		Diuron	0.0048		ug/L	P332643	
		Fenuron	0.0080	U	ug/L	P332643	
		Imidacloprid	0.022		ug/L	P332643	MS
		Bentazon	0.016		ug/L	P332643	MS
		Linuron	0.0040	U	ug/L	P332643	
		Acetaminophen**	0.0080	U	ug/L	P332643	RPD
		MCP	0.0020	U	ug/L	P332643	
		Carbamazepine**	0.0023		ug/L	P332643	
		Triclopyr**	0.0040	U	ug/L	P332643	
		Primidone**	0.0053	I	ug/L	P332643	
		Fluridone**	0.094		ug/L	P332643	

Sample Location: LITTLE WEKIVA (WEST) 50M US OF NORTHWESTERN AVE

Collection Date/Time: 10/04/2017 11:45

Field ID: G2CE0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934419	EPA 180.1 Rev. 2.0	Turbidity	1.6	A	NTU	P332813	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P332903	
		Sulfate	7.5	A	mg SO4/L	P332907	

Field ID: G2CE0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934419	SM 2120 B	Color (true)	75	A	PCU	P332833	
	SM 2320 B-97	Total Alkalinity	52		mg CaCO3/L	P333346	
	SM 2540 C-97	TDS	116		mg/L	P333144	
	SM 2540 D-97	TSS	3	I	mg/L	P333004	
	SM 4500 F-C-97	Fluoride	0.072	I	mg F/L	P333349	
1934421	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P333233	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P333127	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P333167	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P333063	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P333154	
1934423	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P332847	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: LITTLE WEKIVA (WEST) 50M US OF
 NORTHWESTERN AVE

Collection Date/Time: 10/04/2017 11:45

Field ID: G2CE0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1934437	EPA 8321B	Sucralose**	0.51		ug/L	P332778	RPD
	USGS O-2060-01	2,4-D	0.045		ug/L	P332779	
		Diuron	0.0077		ug/L	P332779	
		Fenuron	0.0080	U	ug/L	P332779	
		Imidacloprid	0.031		ug/L	P332779	
		Bentazon	0.016		ug/L	P332779	MS
		Linuron	0.0040	U	ug/L	P332779	
		Acetaminophen**	0.0080	U	ug/L	P332779	
		MCP	0.0020	U	ug/L	P332779	
		Carbamazepine**	0.0014	I	ug/L	P332779	
		Triclopyr**	0.0040	U	ug/L	P332779	
		Primidone**	0.0040	U	ug/L	P332779	
		Fluridone**	0.18		ug/L	P332779	

Ref. Method and Comment:

USGS O-2060-01: MS accuracy for imidacloprid and fluridone could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P332812

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P332813

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332813

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332903

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P332642

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P332778

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P332833

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333346

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

Reference Method: SM 2540 C-97
Batch ID: P333144

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333004

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P333154

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

Reference Method: USGS O-2060-01
Batch ID: P332643

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: USGS O-2060-01
Batch ID: P332643

Component	Result	Code	Units
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	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: USGS O-2060-01
Batch ID: P332779

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	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332903

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

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: P333167

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: P333056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P332642

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	109		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P332778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	101		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P333346

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P333154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P332643

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.1		P	40 - 150
Acetaminophen	130		P	30 - 150
Bentazon	38.8		P	30 - 150
Carbamazepine	135		P	40 - 150
Diuron	123		P	40 - 150
Fenuron	121		P	40 - 150
Fluridone	123		P	40 - 150
Imidacloprid	115		P	40 - 160
Linuron	122		P	40 - 150
MCP	79.5		P	40 - 150
Primidone	128		P	40 - 150
Triclopyr	79.6		P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P332779

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	109		P	40 - 150
Acetaminophen	103		P	30 - 150
Bentazon	43.4		P	30 - 150
Carbamazepine	126		P	40 - 150
Diuron	116		P	40 - 150
Fenuron	96.1		P	40 - 150
Fluridone	107		P	40 - 150
Imidacloprid	98.5		P	40 - 160
Linuron	95.6		P	40 - 150
MCP	121		P	40 - 150
Primidone	97.2		P	40 - 150
Triclopyr	125		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934339	Chloride	107		P	90 - 110
1934419	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934339	Sulfate	104		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934419	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934420	Ammonia-N	100	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934448	Kjeldahl Nitrogen	95.8	93.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934420	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934466	Total-P	97.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934421	Total-P	98.5	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934403	O-Phosphate-P	96.2	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P332642

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933717	Sucralose	102	107	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P332778

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934706	Sucralose	69.3	114	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P333154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934345	Organic Carbon	97.7	96.4	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P332643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933900	2,4-D	60.6	62.0	P/P	40 - 150
1933900	Acetaminophen	65.7	94.0	P/P	30 - 150
1933900	Bentazon	22.4	22.5	F/F	30 - 150
1933900	Carbamazepine	122	125	P/P	40 - 150
1933900	Diuron	100	102	P/P	40 - 150
1933900	Fenuron	103	106	P/P	40 - 150
1933900	Fluridone	113	117	P/P	40 - 150
1933900	Imidacloprid	218	232	F/F	40 - 160
1933900	Linuron	118	114	P/P	40 - 150
1933900	MCP	56.1	61.0	P/P	40 - 150
1933900	Primidone	131	140	P/P	40 - 150
1933900	Triclopyr	56.7	57.1	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P332779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934706	2,4-D	66.3	58.8	P/P	40 - 150
1934706	Acetaminophen	84.5	80.9	P/P	30 - 150
1934706	Bentazon	25.7	21.7	F/F	30 - 150
1934706	Carbamazepine	90.7	94.5	P/P	40 - 150
1934706	Diuron	76.1	79.7	P/P	40 - 150
1934706	Fenuron	82.5	90.8	P/P	40 - 150
1934706	Linuron	91.9	98.1	P/P	40 - 150
1934706	MCP	50.3	53.1	P/P	40 - 150
1934706	Primidone	105	107	P/P	40 - 150
1934706	Triclopyr	47.5	50.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332812

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934369	Turbidity	0.180	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Turbidity	1.23	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Chloride	0.566	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Sulfate	0.416	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934420	Ammonia-N	3.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934448	Kjeldahl Nitrogen	1.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934420	NO2NO3-N	1.91	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934466	Total-P	2.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934421	Total-P	0.609	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934403	O-Phosphate-P	4.27	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P332642

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933717	Sucralose	4.20	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P332778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934706	Sucralose	30.9	Spike	F	0 - 30

Reference Method: SM 2120 B
Batch ID: P332833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934419	Color (true)	1.94	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934884	Total Alkalinity	0.124	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P333144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934462	TDS	0.203	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934884	Fluoride	0.992	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P333154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934345	Organic Carbon	1.25	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P332643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933900	2,4-D	2.05	Spike	P	0 - 30
1933900	Acetaminophen	35.4	Spike	F	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P332643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933900	Bentazon	0.267	Spike	P	0 - 30
1933900	Carbamazepine	2.54	Spike	P	0 - 30
1933900	Diuron	1.62	Spike	P	0 - 30
1933900	Fenuron	2.53	Spike	P	0 - 30
1933900	Fluridone	3.12	Spike	P	0 - 30
1933900	Imidacloprid	6.49	Spike	P	0 - 30
1933900	Linuron	3.05	Spike	P	0 - 30
1933900	MCP	8.37	Spike	P	0 - 30
1933900	Primidone	6.98	Spike	P	0 - 30
1933900	Triclopyr	0.773	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P332779

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934706	2,4-D	4.57	Spike	P	0 - 30
1934706	Acetaminophen	4.40	Spike	P	0 - 30
1934706	Bentazon	4.62	Spike	P	0 - 30
1934706	Carbamazepine	3.92	Spike	P	0 - 30
1934706	Diuron	3.96	Spike	P	0 - 30
1934706	Fenuron	9.55	Spike	P	0 - 30
1934706	Fluridone	4.22	Spike	P	0 - 30
1934706	Imidacloprid	2.56	Spike	P	0 - 30
1934706	Linuron	6.61	Spike	P	0 - 30
1934706	MCP	5.30	Spike	P	0 - 30
1934706	Primidone	1.90	Spike	P	0 - 30
1934706	Triclopyr	6.44	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: 1934436
Field Sample ID: G2CE0087

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	67.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	99.7	P	30 - 160
EPA 8321B	Diuron-d6	69.5	P	30 - 160
EPA 8321B	Primidone-d5	91.3	P	30 - 160
EPA 8321B	Sucralose-d6	104	P	40 - 160
USGS O-2060-01	2,4-D-d3	56.8	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	67.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	99.7	P	30 - 160
USGS O-2060-01	Diuron-d6	69.5	P	30 - 160
USGS O-2060-01	Primidone-d5	91.3	P	30 - 160
USGS O-2060-01	Sucralose-d6	104	P	40 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1934437
Field Sample ID: G2CE0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	64.7	P	30 - 160
EPA 8321B	Carbamazepine-d10	95.8	P	30 - 160
EPA 8321B	Diuron-d6	68.9	P	30 - 160
EPA 8321B	Primidone-d5	92.0	P	30 - 160
EPA 8321B	Sucralose-d6	71.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	59.7	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	64.7	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	95.8	P	30 - 160
USGS O-2060-01	Diuron-d6	68.9	P	30 - 160
USGS O-2060-01	Primidone-d5	92.0	P	30 - 160
USGS O-2060-01	Sucralose-d6	71.5	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A79366
Included Lab Sample IDs: 1934418, 1934419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A79372
Included Lab Sample IDs: 1934418, 1934419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	99.2	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79378
Included Lab Sample IDs: 1934422, 1934423

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	97.8	P/P	90 - 110
O-Phosphate-P	98.5	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A79401
Included Lab Sample IDs: 1934418, 1934419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	108	108	P/P	90 - 110
Chloride	108	107	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A79451

Included Lab Sample IDs: 1934436

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	100	103	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A79478

Included Lab Sample IDs: 1934436, 1934437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.7	97.1	P/P	50 - 150
2,4-D	92.8	93.4	P/P	50 - 150
Acetaminophen	83.8	87.9	P/P	60 - 150
Acetaminophen	87.8	87.5	P/P	60 - 150
Bentazon	87.0	88.6	P/P	50 - 150
Bentazon	88.2	89.7	P/P	50 - 150
Carbamazepine	94.5	95.9	P/P	60 - 150
Carbamazepine	94.6	96.4	P/P	60 - 150
Diuron	92.6	94.7	P/P	60 - 150
Diuron	98.5	94.2	P/P	60 - 150
Fenuron	92.2	93.7	P/P	60 - 150
Fenuron	92.3	94.6	P/P	60 - 150
Fluridone	107	107	P/P	60 - 160
Fluridone	108	107	P/P	60 - 160
Imidacloprid	92.4	88.3	P/P	60 - 150
Imidacloprid	92.4	88.6	P/P	60 - 150
Linuron	94.3	101	P/P	60 - 150
Linuron	96.6	99.8	P/P	60 - 150
MCPP	97.0	100	P/P	50 - 150
MCPP	97.8	98.1	P/P	50 - 150
Primidone	99.6	107	P/P	60 - 150
Primidone	99.8	100	P/P	60 - 150
Triclopyr	105	106	P/P	50 - 150
Triclopyr	99.6	98.2	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79483

Included Lab Sample IDs: 1934420, 1934421

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

Reference Method: SM 5310 B-00

Run ID: A79484

Included Lab Sample IDs: 1934420, 1934421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	98.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A79486
 Included Lab Sample IDs: 1934420, 1934421

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A79510
 Included Lab Sample IDs: 1934420, 1934421

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

Reference Method: EPA 8321B
 Run ID: A79511
 Included Lab Sample IDs: 1934437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	85.0	82.7	P/P	60 - 150

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A79520
 Included Lab Sample IDs: 1934420, 1934421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	102	P/P	90 - 110

Reference Method: SM 2320 B-97
 Run ID: A79535
 Included Lab Sample IDs: 1934418, 1934419

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

Reference Method: SM 4500 F-C-97
 Run ID: A79535
 Included Lab Sample IDs: 1934418, 1934419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	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				0.180	
	Turbidity				1.23	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 300.0 Rev. 2.1	Chloride	107	104	107	0.566	
	Sulfate	103	103	104	0.416	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	100	95.6		3.97
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.5	95.8	93.5		1.32
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	106	104		1.91
EPA 365.1 Rev. 2.0	Total-P	96.4	97.6	100		2.74
	Total-P	98.8	98.5	99.2		0.609
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	96.2	100		4.27
EPA 8321B	Sucralose	109	102	107		4.20
	Sucralose	101	69.3	114		30.9
SM 2120 B	Color (true)				1.94	
SM 2320 B-97	Total Alkalinity	103			0.124	
SM 2540 C-97	TDS				0.203	
SM 4500 F-C-97	Fluoride	96.4				0.992
SM 5310 B-00	Organic Carbon	97.8	97.7	96.4		1.25
USGS O-2060-01	2,4-D	78.1	60.6	62.0		2.05
	2,4-D	109	66.3	58.8		4.57
	Acetaminophen	130	65.7	94.0		35.4
	Acetaminophen	103	84.5	80.9		4.40
	Bentazon	38.8	22.4	22.5		0.267
	Bentazon	43.4	25.7	21.7		4.62
	Carbamazepine	135	122	125		2.54
	Carbamazepine	126	90.7	94.5		3.92
	Diuron	123	100	102		1.62
	Diuron	116	76.1	79.7		3.96
	Fenuron	121	103	106		2.53
	Fenuron	96.1	82.5	90.8		9.55
	Fluridone	123	113	117		3.12
	Fluridone	107				4.22
	Imidacloprid	115	218	232		6.49
	Imidacloprid	98.5				2.56
	Linuron	122	118	114		3.05
	Linuron	95.6	91.9	98.1		6.61
	MCPP	79.5	56.1	61.0		8.37
	MCPP	121	50.3	53.1		5.30
	Primidone	128	131	140		6.98
	Primidone	97.2	105	107		1.90
	Triclopyr	79.6	56.7	57.1		0.773
	Triclopyr	125	47.5	50.6		6.44

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1934418, 1934419
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1934418, 1934419
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1934418, 1934419
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1934420, 1934421
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1934420, 1934421

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	1934420, 1934421
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1934420, 1934421
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1934422, 1934423
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1934436, 1934437
SM 2120 B / E31780	True Color measured at 450 nm	1934418, 1934419
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1934418, 1934419
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1934418, 1934419
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1934418, 1934419
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1934418, 1934419
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1934420, 1934421
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1934436, 1934437
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1934436, 1934437

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	10/05/2017			10/05/2017 15:12	DeAsia Armster	1934418, 1934419
EPA 300.0 Rev. 2.1	10/05/2017			10/06/2017	Julia Storbeck	1934418, 1934419
EPA 350.1 Rev. 2.0	10/05/2017			10/11/2017	Sofia Elnemr	1934420, 1934421
EPA 351.2 Rev. 2.0	10/05/2017	10/11/2017	Adrian Shelby	10/12/2017	Joseph Suarez	1934420, 1934421
EPA 353.2 Rev. 2.0	10/05/2017			10/11/2017	Beverly Y. Sanders	1934420, 1934421
EPA 365.1 Rev. 2.0	10/05/2017	10/10/2017	Sima Feizi	10/11/2017	Lipi Saha	1934420, 1934421
EPA 365.1 Rev. 2.0 dissolved	10/05/2017			10/05/2017 16:12	Megan Treadwell	1934423
	10/05/2017			10/05/2017 16:21	Megan Treadwell	1934422
EPA 8321B	10/05/2017	10/09/2017	Hoor Shaik	10/10/2017	Juyoung Kim	1934436
	10/05/2017	10/11/2017	Juyoung Kim	10/11/2017	Juyoung Kim	1934437
SM 2120 B	10/05/2017			10/05/2017 15:09	Tanya Welborn	1934418
	10/05/2017			10/05/2017 15:10	Tanya Welborn	1934419
SM 2320 B-97	10/05/2017			10/13/2017	Dale L. Simmons	1934418, 1934419
SM 2540 C-97	10/05/2017			10/06/2017	DeAsia Armster	1934418, 1934419
SM 2540 D-97	10/05/2017			10/06/2017	DeAsia Armster	1934418, 1934419
SM 4500 F-C-97	10/05/2017			10/13/2017	Dale L. Simmons	1934418, 1934419
SM 5310 B-00	10/05/2017			10/11/2017	Ping Hua	1934420, 1934421
USGS O-2060-01	10/05/2017	10/09/2017	Hoor Shaik	10/12/2017	Julie Michelle Frank	1934436
	10/05/2017	10/10/2017	Hoor Shaik	10/12/2017	Julie Michelle Frank	1934437