

Chemical Analysis Report

CEN-DIST-2017-09-07-01

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

Event Description: **Silver Lake + LVI + D&B**
Request ID: **RQ-2017-09-04-44**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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3319 Maguire Blvd., Suite 232
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 02-OCT-2017 15:48



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: SILVER LAKE @ CENTER

Collection Date/Time: 09/06/2017 13:39

Field ID: G1CE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928735	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P331443	
	EPA 300.0 Rev. 2.1	Chloride	84		mg Cl/L	P331809	
		Sulfate	20		mg SO4/L	P331808	
	SM 2120 B	Color (true)	14	A	PCU	P331431	
	SM 2320 B-97	Total Alkalinity	85		mg CaCO3/L	P331740	
	SM 2540 C-97	TDS	302	AQ	mg/L	P331978	
	SM 2540 D-97	TSS	2	I	mg/L	P331717	
	SM 4500 F-C-97	Fluoride	0.32		mg F/L	P331741	
1928736	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P331953	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P331797	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P331621	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P331629	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P331963	
1928737	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P331437	
1928741	EPA 8321B	Sucralose**	0.083		ug/L	P331679	
	USGS O-2060-01	2,4-D	0.038		ug/L	P331347	
		Diuron	8.0E-04	U	ug/L	P331347	
		Fenuron	0.0080	U	ug/L	P331347	
		Imidacloprid	8.0E-04	U	ug/L	P331347	MS
		Bentazon	8.0E-04	U	ug/L	P331347	
		Linuron	0.0040	U	ug/L	P331347	
		Acetaminophen**	0.0080	U	ug/L	P331347	
		MCP	0.0020	U	ug/L	P331347	
		Carbamazepine**	4.0E-04	U	ug/L	P331347	
		Triclopyr**	0.0040	U	ug/L	P331347	
		Primidone**	0.0040	U	ug/L	P331347	
		Fluridone**	4.0E-04	U	ug/L	P331347	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.

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

Sample Location: SILVER LAKE @ CENTER DUP

Collection Date/Time: 09/06/2017 13:42

Field ID: G1CE0007_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928742	EPA 8321B	Sucralose**	0.078		ug/L	P331679	
	USGS O-2060-01	2,4-D	0.038		ug/L	P331608	
		Diuron	8.0E-04	U	ug/L	P331608	
		Fenuron	0.0080	U	ug/L	P331608	
		Imidacloprid	8.0E-04	U	ug/L	P331608	
		Bentazon	8.0E-04	U	ug/L	P331608	MS
		Linuron	0.0040	U	ug/L	P331608	RPD
		Acetaminophen**	0.0080	U	ug/L	P331608	
		MCP	0.0020	U	ug/L	P331608	

Field ID: G1CE0007_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928742	USGS O-2060-01	Carbamazepine**	4.0E-04	U	ug/L	P331608	
		Triclopyr**	0.0040	U	ug/L	P331608	
		Primidone**	0.0040	U	ug/L	P331608	
		Fluridone**	4.0E-04	U	ug/L	P331608	

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. MS precision for fluridone could not be assessed due to it exceeding the instrument calibration range.

Sample Location: FIELD BLANK

Collection Date/Time: 09/06/2017 14:01

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928743	EPA 8321B	Sucralose**	0.010	U	ug/L	P331506	MS
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P331608	
		Diuron	8.0E-04	U	ug/L	P331608	
		Fenuron	0.0080	U	ug/L	P331608	
		Imidacloprid	8.0E-04	U	ug/L	P331608	
		Bentazon	8.0E-04	U	ug/L	P331608	MS
		Linuron	0.0040	U	ug/L	P331608	RPD
		Acetaminophen**	0.0080	U	ug/L	P331608	
		MCP	0.0020	U	ug/L	P331608	
		Carbamazepine**	4.0E-04	U	ug/L	P331608	
		Triclopyr**	0.0040	U	ug/L	P331608	
		Primidone**	0.0040	U	ug/L	P331608	
		Fluridone**	4.0E-04	U	ug/L	P331608	

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. MS precision for fluridone could not be assessed due to it exceeding the instrument calibration range.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P331443

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P331808

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P331809

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331953

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331797

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331621

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331629

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

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

Reference Method: EPA 8321B
Batch ID: P331506

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P331679

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P331431

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P331740

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P331978

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P331717

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P331741

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P331963

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

Reference Method: USGS O-2060-01
Batch ID: P331347

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
MCP	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: P331608

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
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P331608

Component	Result	Code	Units
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P331808

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P331809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P331953

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P331797

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P331621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P331629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P331437

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

Reference Method: EPA 8321B
 Batch ID: P331506

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

Reference Method: EPA 8321B
Batch ID: P331506

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

Reference Method: EPA 8321B
Batch ID: P331679

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

Reference Method: SM 2320 B-97
Batch ID: P331740

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P331741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P331963

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P331347

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	89.6		P	40 - 150
Acetaminophen	130		P	30 - 150
Bentazon	105		P	40 - 150
Carbamazepine	109		P	40 - 150
Diuron	113		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	122		P	40 - 150
Imidacloprid	97.0		P	40 - 160
Linuron	101		P	40 - 150
MCP	78.3		P	40 - 150
Primidone	105		P	40 - 150
Triclopyr	92.1		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P331608

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	58.5		P	40 - 150
Acetaminophen	127		P	30 - 150
Bentazon	46.4		P	40 - 150
Carbamazepine	133		P	40 - 150
Diuron	110		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P331608

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	110		P	40 - 150
Fluridone	111		P	40 - 150
Imidacloprid	118		P	40 - 160
Linuron	96.2		P	40 - 150
MCPP	58.8		P	40 - 150
Primidone	110		P	40 - 150
Triclopyr	61.0		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928946	Sulfate	95.1		P	90 - 110
1928969	Sulfate	92.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928946	Chloride	94.2		P	90 - 110
1928969	Chloride	93.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928656	Ammonia-N	100	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331797

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928654	Kjeldahl Nitrogen	97.9	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928736	NO2NO3-N	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928654	Total-P	93.9	91.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P331437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928522	O-Phosphate-P	99.9	99.9	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P331506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928742	Sucralose	38.7	64.2	F/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P331679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1929018	Sucralose	66.4	66.7	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P331741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928615	Fluoride	96.9	96.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P331963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928616	Organic Carbon	101	98.0	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P331347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927989	2,4-D	123	122	P/P	40 - 150
1927989	Acetaminophen	134	132	P/P	30 - 150
1927989	Bentazon	59.3	43.3	P/P	40 - 150
1927989	Carbamazepine	106	102	P/P	40 - 150
1927989	Diuron	81.6	76.0	P/P	40 - 150
1927989	Fenuron	75.2	72.7	P/P	40 - 150
1927989	Fluridone	79.3	81.3	P/P	40 - 150
1927989	Imidacloprid	222	215	F/F	40 - 160
1927989	Linuron	83.4	91.3	P/P	40 - 150
1927989	MCP	117	118	P/P	40 - 150
1927989	Primidone	99.3	97.6	P/P	40 - 150
1927989	Triclopyr	108	101	P/P	40 - 150

Reference Method: USGS O-2060-01
 Batch ID: P331608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928756	2,4-D	48.3	50.9	P/P	40 - 150
1928756	Acetaminophen	68.6	67.6	P/P	30 - 150
1928756	Bentazon	25.4	24.4	F/F	40 - 150
1928756	Carbamazepine	91.6	93.5	P/P	40 - 150
1928756	Diuron	69.6	75.5	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P331608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928756	Fenuron	91.3	99.7	P/P	40 - 150
1928756	Linuron	59.1	80.0	P/P	40 - 150
1928756	MCP	50.0	52.0	P/P	40 - 150
1928756	Primidone	96.4	105	P/P	40 - 150
1928756	Triclopyr	40.7	41.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928735	Turbidity	3.94	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928946	Sulfate	0.249	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928946	Chloride	0.0716	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928656	Ammonia-N	4.04	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928654	Kjeldahl Nitrogen	3.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928736	NO2NO3-N	0.905	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P331629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928654	Total-P	2.75	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P331437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928522	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P331506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928742	Sucralose	22.0	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P331679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1929018	Sucralose	0.192	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P331431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928735	Color (true)	8.49	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P331740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928615	Total Alkalinity	0.168	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97

Batch ID: P331978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928735	TDS	5.30	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97

Batch ID: P331741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928615	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
 Batch ID: P331963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928616	Organic Carbon	2.11	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P331347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927989	2,4-D	0.208	Spike	P	0 - 30
1927989	Acetaminophen	1.19	Spike	P	0 - 30
1927989	Bentazon	9.60	Spike	P	0 - 30
1927989	Carbamazepine	3.80	Spike	P	0 - 30
1927989	Diuron	7.21	Spike	P	0 - 30
1927989	Fenuron	3.49	Spike	P	0 - 30
1927989	Fluridone	2.52	Spike	P	0 - 30
1927989	Imidacloprid	3.26	Spike	P	0 - 30
1927989	Linuron	9.09	Spike	P	0 - 30
1927989	MCP	0.649	Spike	P	0 - 30
1927989	Primidone	1.81	Spike	P	0 - 30
1927989	Triclopyr	7.05	Spike	P	0 - 30

Reference Method: USGS O-2060-01
 Batch ID: P331608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928756	2,4-D	3.64	Spike	P	0 - 30
1928756	Acetaminophen	1.53	Spike	P	0 - 30
1928756	Bentazon	1.94	Spike	P	0 - 30
1928756	Carbamazepine	1.92	Spike	P	0 - 30
1928756	Diuron	6.59	Spike	P	0 - 30
1928756	Fenuron	8.73	Spike	P	0 - 30
1928756	Imidacloprid	4.68	Spike	P	0 - 30
1928756	Linuron	30.1	Spike	F	0 - 30
1928756	MCP	3.92	Spike	P	0 - 30
1928756	Primidone	8.88	Spike	P	0 - 30
1928756	Triclopyr	2.90	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: 1928741
 Field Sample ID: G1CE0007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	101	P	30 - 160
EPA 8321B	Carbamazepine-d10	119	P	30 - 160
EPA 8321B	Diuron-d6	99.5	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1928741
Field Sample ID: G1CE0007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Primidone-d5	134	P	30 - 160
EPA 8321B	Sucralose-d6	96.8	P	40 - 160
EPA 8321B	Sucralose-d6	73.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	83.9	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	101	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	119	P	30 - 160
USGS O-2060-01	Diuron-d6	99.5	P	30 - 160
USGS O-2060-01	Primidone-d5	134	P	30 - 160
USGS O-2060-01	Sucralose-d6	96.8	P	40 - 160
USGS O-2060-01	Sucralose-d6	73.0	P	40 - 160

Lab Sample ID: 1928742
Field Sample ID: G1CE0007_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	58.4	P	30 - 160
EPA 8321B	Carbamazepine-d10	70.7	P	30 - 160
EPA 8321B	Diuron-d6	59.2	P	30 - 160
EPA 8321B	Primidone-d5	76.5	P	30 - 160
EPA 8321B	Sucralose-d6	45.0	P	40 - 160
EPA 8321B	Sucralose-d6	61.8	P	40 - 160
USGS O-2060-01	2,4-D-d3	50.4	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	58.4	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	70.7	P	30 - 160
USGS O-2060-01	Diuron-d6	59.2	P	30 - 160
USGS O-2060-01	Primidone-d5	76.5	P	30 - 160
USGS O-2060-01	Sucralose-d6	45.0	P	40 - 160
USGS O-2060-01	Sucralose-d6	61.8	P	40 - 160

Lab Sample ID: 1928743
Field Sample ID: Field Blank

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	121	P	30 - 160
EPA 8321B	Carbamazepine-d10	114	P	30 - 160
EPA 8321B	Diuron-d6	92.7	P	30 - 160
EPA 8321B	Primidone-d5	104	P	30 - 160
EPA 8321B	Sucralose-d6	97.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	52.8	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	121	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	114	P	30 - 160
USGS O-2060-01	Diuron-d6	92.7	P	30 - 160
USGS O-2060-01	Primidone-d5	104	P	30 - 160
USGS O-2060-01	Sucralose-d6	97.6	P	40 - 160

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A78847
Included Lab Sample IDs: 1928735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	104	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78851
Included Lab Sample IDs: 1928737

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78853
Included Lab Sample IDs: 1928735

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78906
Included Lab Sample IDs: 1928736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A78939
Included Lab Sample IDs: 1928743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	109	P/P	60 - 150

Reference Method: SM 2320 B-97
Run ID: A78959
Included Lab Sample IDs: 1928735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A78959
Included Lab Sample IDs: 1928735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78979
Included Lab Sample IDs: 1928736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A78987

Included Lab Sample IDs: 1928735

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79044

Included Lab Sample IDs: 1928736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	106	105	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A79049

Included Lab Sample IDs: 1928736

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79057

Included Lab Sample IDs: 1928736

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

Reference Method: USGS O-2060-01

Run ID: A79060

Included Lab Sample IDs: 1928741, 1928742, 1928743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.2	97.7	P/P	50 - 150
2,4-D	97.7	98.1	P/P	50 - 150
Acetaminophen	103	104	P/P	60 - 150
Acetaminophen	104	102	P/P	60 - 150
Bentazon	94.5	97.4	P/P	50 - 150
Bentazon	97.4	102	P/P	50 - 150
Carbamazepine	119	122	P/P	60 - 150
Carbamazepine	121	119	P/P	60 - 150
Diuron	102	97.9	P/P	60 - 150
Diuron	97.9	102	P/P	60 - 150
Fenuron	100	102	P/P	60 - 150
Fenuron	102	102	P/P	60 - 150
Fluridone	103	104	P/P	60 - 160
Fluridone	104	106	P/P	60 - 160
Imidacloprid	91.8	99.1	P/P	60 - 150
Imidacloprid	99.3	91.8	P/P	60 - 150
Linuron	97.4	100	P/P	60 - 150
Linuron	97.4	97.4	P/P	60 - 150
MCPP	95.0	98.5	P/P	50 - 150
MCPP	98.5	96.9	P/P	50 - 150
Primidone	93.7	94.9	P/P	60 - 150
Primidone	94.9	98.6	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A79060

Included Lab Sample IDs: 1928741, 1928742, 1928743

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Triclopyr	105	105	P/P	50 - 150
Triclopyr	105	100	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A79086

Included Lab Sample IDs: 1928741, 1928742

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	140	135	P/P	60 - 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					3.94	
EPA 300.0 Rev. 2.1	Chloride	98.7	94.2	93.0		0.0716	
	Sulfate	97.8	95.1	92.7		0.249	
EPA 350.1 Rev. 2.0	Ammonia-N	107	100	106			4.04
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	97.9	102			3.30
EPA 353.2 Rev. 2.0	NO2NO3-N	108	109	108			0.905
EPA 365.1 Rev. 2.0	Total-P	91.8	93.9	91.3			2.75
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	99.9	99.9			0.0
EPA 8321B	Sucralose	92.2	38.7	64.2			22.0
	Sucralose	101	66.4	66.7			0.192
SM 2120 B	Color (true)					8.49	
SM 2320 B-97	Total Alkalinity	101				0.168	
SM 2540 C-97	TDS					5.30	
SM 4500 F-C-97	Fluoride	95.4	96.9	96.9			0.0
SM 5310 B-00	Organic Carbon	97.0	101	98.0			2.11
USGS O-2060-01	2,4-D	89.6	123	122			0.208
	2,4-D	58.5	48.3	50.9			3.64
	Acetaminophen	130	134	132			1.19
	Acetaminophen	127	68.6	67.6			1.53
	Bentazon	105	59.3	43.3			9.60
	Bentazon	46.4	25.4	24.4			1.94
	Carbamazepine	109	106	102			3.80
	Carbamazepine	133	91.6	93.5			1.92
	Diuron	113	81.6	76.0			7.21
	Diuron	110	69.6	75.5			6.59
	Fenuron	111	75.2	72.7			3.49
	Fenuron	110	91.3	99.7			8.73
	Fluridone	122	79.3	81.3			2.52
	Fluridone	111					
	Imidacloprid	97.0	222	215			3.26
	Imidacloprid	118					4.68

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision LCS	SMP	MS
USGS O-2060-01	Linuron	101	83.4	91.3			9.09
	Linuron	96.2	59.1	80.0			30.1
	MCP	78.3	117	118			0.649
	MCP	58.8	50.0	52.0			3.92
	Primidone	105	99.3	97.6			1.81
	Primidone	110	96.4	105			8.88
	Triclopyr	92.1	108	101			7.05
	Triclopyr	61.0	40.7	41.9			2.90

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1928735
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1928735
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1928735
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1928736
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1928736
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1928736
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1928736
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1928737
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1928741, 1928742, 1928743
SM 2120 B / E31780	True Color measured at 450 nm	1928735
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1928735
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1928735
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1928735
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1928735
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1928736
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1928741, 1928742, 1928743
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1928741, 1928742, 1928743

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	09/07/2017			09/07/2017 14:19	DeAsia Armster	1928735
EPA 300.0 Rev. 2.1	09/07/2017			09/18/2017	Julia Storbeck	1928735
EPA 350.1 Rev. 2.0	09/07/2017			09/20/2017	Sofia Elnemr	1928736
EPA 351.2 Rev. 2.0	09/07/2017	09/19/2017	Adrian Shelby	09/20/2017	Tanya Welborn	1928736
EPA 353.2 Rev. 2.0	09/07/2017			09/14/2017	Beverly Y. Sanders	1928736
EPA 365.1 Rev. 2.0	09/07/2017	09/14/2017	Sima Feizi	09/18/2017	Lipi Saha	1928736
EPA 365.1 Rev. 2.0 dissolved	09/07/2017			09/07/2017 13:12	Megan Treadwell	1928737
EPA 8321B	09/07/2017	09/13/2017	Hoor Shaik	09/13/2017	Julie Michelle Frank	1928743
	09/07/2017	09/19/2017	Hoor Shaik	09/21/2017	Juyoung Kim	1928741, 1928742
SM 2120 B	09/07/2017			09/07/2017 13:43	Tanya Welborn	1928735
SM 2320 B-97	09/07/2017			09/15/2017	Dale L. Simmons	1928735
SM 2540 C-97	09/07/2017			09/13/2017	DeAsia Armster	1928735
SM 2540 D-97	09/07/2017			09/13/2017	DeAsia Armster	1928735
SM 4500 F-C-97	09/07/2017			09/15/2017	Dale L. Simmons	1928735
SM 5310 B-00	09/07/2017			09/20/2017	Ping Hua	1928736
USGS O-2060-01	09/07/2017	09/07/2017	Hoor Shaik	09/20/2017	Julie Michelle Frank	1928741
	09/07/2017	09/13/2017	Hoor Shaik	09/20/2017	Julie Michelle Frank	1928742, 1928743