

Chemical Analysis Report

CEN-DIST-2018-03-07-02

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

Event Description: **Lorraine / Lady / Silver + D&B**
Request ID: **RQ-2018-03-05-64**
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: 29-MAR-2018 16:24

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: Lady Lake @ Center of North Lobe (1342A)

Collection Date/Time: 03/06/2018 11:54

Field ID: G4CE0139

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972611	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P341135	
	EPA 300.0 Rev. 2.1	Chloride	9.1		mg Cl/L	P341421	
		Sulfate	7.2		mg SO4/L	P341426	
	SM 2120 B	Color (true)	20		PCU	P341127	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P341522	
	SM 2540 C-97	TDS	35		mg/L	P341592	
	SM 2540 D-97	TSS	4	I	mg/L	P341609	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P341525	
1972612	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P341495	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.62		mg N/L	P341603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341286	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P341315	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P341579	
1972613	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341143	

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 Lorraine @ NE Corner of Lake (2829A)

Collection Date/Time: 03/06/2018 12:40

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972608	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P341135	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P341421	
		Sulfate	1.7	A	mg SO4/L	P341426	
	SM 2120 B	Color (true)	96		PCU	P341127	
	SM 2320 B-97	Total Alkalinity	51		mg CaCO3/L	P341522	
	SM 2540 C-97	TDS	130		mg/L	P341592	
	SM 2540 D-97	TSS	2	I	mg/L	P341609	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P341525	
1972609	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P341495	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P341603	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P341286	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P341315	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P341579	
1972610	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P341143	
1972630	EPA 8321B	2,4-D	0.0020	U	ug/L	P341079	
		Sucralose**	0.053		ug/L	P341049	
		Bentazon	8.0E-04	U	ug/L	P341079	
		MCP	0.0020	U	ug/L	P341079	
		Triclopyr**	0.0040	U	ug/L	P341079	
		Imidacloprid	0.0038	I	ug/L	P341079	MS
		Diuron	0.0020	U	ug/L	P341079	
		Pyraclostrobin**	0.0020	U	ug/L	P341079	
		Primidone**	0.0040	U	ug/L	P341079	

Field ID: G1CE0061

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972630	EPA 8321B	Linuron	0.0040	U	ug/L	P341079	
		Acetaminophen**	0.0080	U	ug/L	P341079	
		Fenuron	0.0080	U	ug/L	P341079	
		Imazapyr**	0.053		ug/L	P341079	
		Carbamazepine**	4.0E-04	U	ug/L	P341079	
		Fluridone**	0.092		ug/L	P341079	

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: Silver Lake @ Center (2825A)

Collection Date/Time: 03/06/2018 13:25

Field ID: G1CE0007

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972631	EPA 8321B	2,4-D	0.0053	IJ	ug/L	P341079	SUR
		Sucralose**	0.20		ug/L	P341049	
		Bentazon	8.0E-04	UJ	ug/L	P341079	SUR
		MCP	0.0020	UJ	ug/L	P341079	SUR
		Triclopyr**	0.0040	UJ	ug/L	P341079	SUR
		Imidacloprid	0.0011	T	ug/L	P341079	MS
		Diuron	0.0020	U	ug/L	P341079	
		Pyraclostrobin**	0.0020	U	ug/L	P341079	
		Primidone**	0.0040	U	ug/L	P341079	
		Linuron	0.0040	U	ug/L	P341079	
		Acetaminophen**	0.0080	U	ug/L	P341079	
		Fenuron	0.0080	U	ug/L	P341079	
		Imazapyr**	0.0040	U	ug/L	P341079	
		Carbamazepine**	4.0E-04	U	ug/L	P341079	
		Fluridone**	8.0E-04	U	ug/L	P341079	

Ref. Method and Comment:

EPA 8321B: Results confirmed in re-extraction. Refer to the narrative for an explanation of QC Codes.

Sample Location: Silver Lake @ Center (2825A)

Collection Date/Time: 03/06/2018 13:29

Field ID: G1CE0007DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972632	EPA 8321B	2,4-D	0.0062	IJ	ug/L	P341079	SUR
		Sucralose**	0.19		ug/L	P341049	
		Bentazon	8.0E-04	UJ	ug/L	P341079	SUR
		MCP	0.0020	UJ	ug/L	P341079	SUR
		Triclopyr**	0.0040	UJ	ug/L	P341079	SUR
		Imidacloprid	0.0073	I	ug/L	P341079	MS
		Diuron	0.0020	U	ug/L	P341079	
		Pyraclostrobin**	0.0020	U	ug/L	P341079	
		Primidone**	0.0040	U	ug/L	P341079	
		Linuron	0.0040	U	ug/L	P341079	
		Acetaminophen**	0.0080	U	ug/L	P341079	
		Fenuron	0.0080	U	ug/L	P341079	

Field ID: G1CE0007DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1972632	EPA 8321B	Imazapyr**	0.0040	U	ug/L	P341079	
		Carbamazepine**	4.0E-04	U	ug/L	P341079	
		Fluridone**	8.0E-04	U	ug/L	P341079	

Ref. Method and Comment:
 EPA 8321B: Results confirmed in re-extraction. Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P341135

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P341421

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P341426

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P341495

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P341603

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P341286

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P341315

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P341143

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341143

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

Reference Method: EPA 8321B
Batch ID: P341049

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P341079

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0020	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	8.0E-04	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P341127

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P341522

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

Reference Method: SM 2540 C-97
Batch ID: P341592

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P341609

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P341525

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P341579

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341426

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341495

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: P341603

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341286

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341315

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341143

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341143

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

Reference Method: EPA 8321B
Batch ID: P341049

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

Reference Method: EPA 8321B
Batch ID: P341079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	67.5		P	40 - 150
Acetaminophen	95.6		P	30 - 150
Bentazon	99.3		P	30 - 150
Carbamazepine	84.7		P	40 - 150
Diuron	66.5		P	40 - 150
Fenuron	103		P	40 - 150
Fluridone	66.9		P	40 - 150
Imazapyr	81.0		P	40 - 150
Imidacloprid	98.3		P	40 - 160
Linuron	76.4		P	40 - 150
MCPP	75.6		P	40 - 150
Primidone	98.6		P	40 - 150
Pyraclostrobin	68.8		P	40 - 150
Triclopyr	71.5		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P341522

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.8		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P341525

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P341579

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

Quality Assurance Report Matrix Spike Accuracy

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972608	Chloride	103		P	90 - 110
1972611	Chloride	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972608	Sulfate	102		P	90 - 110
1972611	Sulfate	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972591	Ammonia-N	97.1	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341603

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972612	Kjeldahl Nitrogen	94.0	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972591	NO2NO3-N	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972591	Total-P	98.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972795	O-Phosphate-P	95.5	96.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P341049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972405	Sucralose	107	101	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P341079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972737	2,4-D	49.6	48.1	P/P	40 - 150
1972737	Acetaminophen	124	131	P/P	30 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P341079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972737	Bentazon	76.5	81.5	P/P	30 - 150
1972737	Carbamazepine	76.6	77.1	P/P	40 - 150
1972737	Diuron	65.9	63.4	P/P	40 - 150
1972737	Fenuron	81.0	80.5	P/P	40 - 150
1972737	Fluridone	56.3	63.6	P/P	40 - 150
1972737	Imazapyr	57.3	51.2	P/P	40 - 150
1972737	Imidacloprid	179	173	F/F	40 - 160
1972737	Linuron	84.5	77.7	P/P	40 - 150
1972737	MCPP	52.0	51.9	P/P	40 - 150
1972737	Primidone	106	116	P/P	40 - 150
1972737	Pyraclostrobin	70.0	62.1	P/P	40 - 150
1972737	Triclopyr	50.9	56.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P341525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972878	Fluoride	93.3	95.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P341579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1972591	Organic Carbon	98.0	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P341135

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972611	Turbidity	0.763	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972608	Chloride	1.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P341426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972608	Sulfate	0.830	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P341495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972591	Ammonia-N	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P341603

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972612	Kjeldahl Nitrogen	7.96	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P341286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972591	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P341315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972591	Total-P	3.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P341143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972795	O-Phosphate-P	1.46	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P341049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972405	Sucralose	4.52	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P341079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972737	2,4-D	2.99	Spike	P	0 - 30
1972737	Acetaminophen	5.48	Spike	P	0 - 30
1972737	Bentazon	4.95	Spike	P	0 - 30
1972737	Carbamazepine	0.749	Spike	P	0 - 30
1972737	Diuron	3.39	Spike	P	0 - 30
1972737	Fenuron	0.669	Spike	P	0 - 30
1972737	Fluridone	8.57	Spike	P	0 - 30
1972737	Imazapyr	4.30	Spike	P	0 - 30
1972737	Imidacloprid	3.36	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P341079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972737	Linuron	8.45	Spike	P	0 - 30
1972737	MCP	0.250	Spike	P	0 - 30
1972737	Primidone	7.83	Spike	P	0 - 30
1972737	Pyraclostrobin	11.9	Spike	P	0 - 30
1972737	Triclopyr	9.43	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P341127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972524	Color (true)	3.30	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P341522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972878	Total Alkalinity	0.748	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P341592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972590	TDS	4.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P341525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972878	Fluoride	1.95	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P341579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1972591	Organic Carbon	0.708	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Quality Assurance Report Surrogates

Lab Sample ID: 1972630
Field Sample ID: G1CE0061

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	34.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	125	P	30 - 160
EPA 8321B	Carbamazepine-d10	63.1	P	30 - 160
EPA 8321B	Diuron-d6	57.4	P	30 - 160
EPA 8321B	Primidone-d5	75.2	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	40 - 160

Lab Sample ID: 1972631
Field Sample ID: G1CE0007

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	27.7	F	30 - 160
EPA 8321B	Acetaminophen-d4	115	P	30 - 160
EPA 8321B	Carbamazepine-d10	57.8	P	30 - 160
EPA 8321B	Diuron-d6	53.3	P	30 - 160
EPA 8321B	Primidone-d5	74.1	P	30 - 160
EPA 8321B	Sucralose-d6	99.1	P	40 - 160

Lab Sample ID: 1972632
Field Sample ID: G1CE0007DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	29.9	F	30 - 160
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	51.6	P	30 - 160
EPA 8321B	Diuron-d6	55.5	P	30 - 160
EPA 8321B	Primidone-d5	67.6	P	30 - 160
EPA 8321B	Sucralose-d6	91.0	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A82485
Included Lab Sample IDs: 1972608, 1972611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82487
Included Lab Sample IDs: 1972608, 1972611

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82489
Included Lab Sample IDs: 1972610, 1972613

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82489

Included Lab Sample IDs: 1972610, 1972613

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82509

Included Lab Sample IDs: 1972608, 1972611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	95.4	94.7	P/P	90 - 110
Sulfate	96.8	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A82523

Included Lab Sample IDs: 1972609, 1972612

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

Reference Method: EPA 8321B

Run ID: A82544

Included Lab Sample IDs: 1972630, 1972631, 1972632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	109	P/P	60 - 150
Sucralose	95.4	101	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A82550

Included Lab Sample IDs: 1972609, 1972612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.8	P/P	90 - 110
Total-P	99.8	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A82580

Included Lab Sample IDs: 1972630, 1972631, 1972632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.2	101	P/P	50 - 150
Acetaminophen	98.5	99.9	P/P	60 - 150
Bentazon	136	136	P/P	50 - 150
Carbamazepine	88.7	95.2	P/P	60 - 150
Diuron	97.8	95.8	P/P	60 - 150
Fenuron	92.3	91.3	P/P	60 - 150
Fluridone	98.2	99.2	P/P	60 - 160
Imazapyr	96.3	76.0	P/P	50 - 150
Imidacloprid	94.0	93.7	P/P	60 - 150
Linuron	116	110	P/P	60 - 150
MCPP	95.1	105	P/P	50 - 150
Primidone	108	92.7	P/P	60 - 150
Pyraclostrobin	87.3	93.0	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A82580

Included Lab Sample IDs: 1972630, 1972631, 1972632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Triclopyr	93.3	98.2	P/P	50 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A82584

Included Lab Sample IDs: 1972609, 1972612

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

Reference Method: SM 2320 B-97

Run ID: A82604

Included Lab Sample IDs: 1972608, 1972611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A82604

Included Lab Sample IDs: 1972608, 1972611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A82620

Included Lab Sample IDs: 1972609, 1972612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.7	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82661

Included Lab Sample IDs: 1972609, 1972612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.9	99.3	P/P	90 - 110
Kjeldahl Nitrogen	99.3	93.9	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				0.763	
EPA 300.0 Rev. 2.1	Chloride	97.2	103	97.0	1.84	
	Sulfate	99.2	102	98.2	0.830	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	97.1	99.2		1.48
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	94.0	106		7.96
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	103	104	102		1.03
EPA 365.1 Rev. 2.0	Total-P	103	98.0	102		3.81
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	95.5	96.9		1.46
EPA 8321B	2,4-D	67.5	49.6	48.1		2.99
	Acetaminophen	95.6	124	131		5.48
	Bentazon	99.3	76.5	81.5		4.95
	Carbamazepine	84.7	76.6	77.1		0.749
	Diuron	66.5	65.9	63.4		3.39
	Fenuron	103	81.0	80.5		0.669
	Fluridone	66.9	56.3	63.6		8.57
	Imazapyr	81.0	57.3	51.2		4.30
	Imidacloprid	98.3	179	173		3.36
	Linuron	76.4	84.5	77.7		8.45
	MCP	75.6	52.0	51.9		0.250
	Primidone	98.6	106	116		7.83
	Pyraclostrobin	68.8	70.0	62.1		11.9
	Sucralose	92.2	107	101		4.52
	Triclopyr	71.5	50.9	56.0		9.43
SM 2120 B	Color (true)				3.30	
SM 2320 B-97	Total Alkalinity	98.8			0.748	
SM 2540 C-97	TDS				4.74	
SM 4500 F-C-97	Fluoride	95.3	93.3	95.4		1.95
SM 5310 B-00	Organic Carbon	98.0	98.0	99.2		0.708

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1972608, 1972611
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1972608, 1972611
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1972608, 1972611
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1972609, 1972612
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1972609, 1972612
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1972609, 1972612
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1972609, 1972612
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1972610, 1972613
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	1972630, 1972631, 1972632
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1972630, 1972631, 1972632
SM 2120 B / E31780	True Color measured at 450 nm	1972608, 1972611
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1972608, 1972611
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1972608, 1972611
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1972608, 1972611
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1972608, 1972611
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1972609, 1972612

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	03/07/2018			03/07/2018 15:18	DeAsia Armster	1972608, 1972611
EPA 300.0 Rev. 2.1	03/07/2018			03/09/2018	Julia Storbeck	1972608, 1972611
EPA 350.1 Rev. 2.0	03/07/2018			03/12/2018	Ping Hua	1972609, 1972612
EPA 351.2 Rev. 2.0	03/07/2018	03/15/2018	Adrian Shelby	03/16/2018	Joseph Suarez	1972609, 1972612
EPA 353.2 Rev. 2.0	03/07/2018			03/09/2018	Beverly Y. Sanders	1972609, 1972612
EPA 365.1 Rev. 2.0	03/07/2018	03/09/2018	Sima Feizi	03/12/2018	Beverly Y. Sanders	1972609, 1972612
EPA 365.1 Rev. 2.0 dissolved	03/07/2018			03/07/2018 17:40	Megan Treadwell	1972610, 1972613
EPA 8321B	03/07/2018	03/09/2018	Hoor Shaik	03/09/2018	Julie Michelle Frank	1972630, 1972631, 1972632
	03/07/2018	03/09/2018	Hoor Shaik	03/10/2018	Julie Michelle Frank	1972630, 1972631, 1972632
	03/07/2018	03/09/2018	Julie Michelle Frank	03/09/2018	Juyoung Kim	1972630, 1972631, 1972632
SM 2120 B	03/07/2018			03/07/2018 15:44	Tanya Welborn	1972608
	03/07/2018			03/07/2018 15:45	Tanya Welborn	1972611
SM 2320 B-97	03/07/2018			03/14/2018	Dale L. Simmons	1972608, 1972611
SM 2540 C-97	03/07/2018			03/10/2018	Yijie Li	1972608, 1972611
SM 2540 D-97	03/07/2018			03/10/2018	Yijie Li	1972608, 1972611
SM 4500 F-C-97	03/07/2018			03/14/2018	Dale L. Simmons	1972608, 1972611
SM 5310 B-00	03/07/2018			03/12/2018	Megan Treadwell	1972609, 1972612