

Chemical Analysis Report

WQ-ASSESS-2017-05-23-01

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

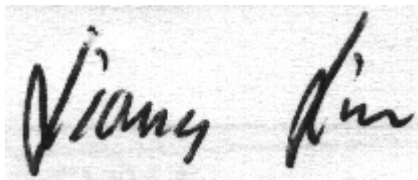
Event Description: **Withlacoochee**
Request ID: **RQ-2017-05-08-18**
Customer: **WQ-ASSESS**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
Division Of Water Facilities, FL DEP
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 19-JUN-2017 17:37

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: Withlacoochee Near Suwannee

Collection Date/Time: 05/23/2017 11:40

Field ID: G1WA0065_05232017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900958	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P325791	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P326773	MS
		Sulfate	26		mg SO4/L	P326775	
	SM 2120 B	Color (true)	7.1		PCU	P325781	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P325952	
	SM 2540 C-97	TDS	190	A	mg/L	P326091	
	SM 2540 D-97	TSS	2	UA	mg/L	P326267	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P325955	RPD
1900959	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P325860	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P325798	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P325885	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P325802	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P326023	
1900960	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.034		mg P/L	P325742	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Withlacoochee Near Suwannee

Collection Date/Time: 05/23/2017 11:40

Field ID: G1WA0065_05232017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1900964	EPA 8321B	Sucralose**	0.27		ug/L	P325694	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P325789	
		Diuron	8.8E-04	I	ug/L	P325789	
		Fenuron	0.0040	U	ug/L	P325789	
		Imidacloprid	8.0E-04	U	ug/L	P325789	
		Bentazon	0.0020	I	ug/L	P325789	MS
		Linuron	0.0040	U	ug/L	P325789	
		Acetaminophen**	0.0080	U	ug/L	P325789	
		MCP	0.0020	U	ug/L	P325789	
		Carbamazepine**	0.0014	I	ug/L	P325789	
		Triclopyr**	0.0040	U	ug/L	P325789	
		Primidone**	0.0040	U	ug/L	P325789	
		Fluridone**	0.0013	I	ug/L	P325789	

Ref. Method and Comment:

USGS O-2060-01: Results confirmed in re-extraction.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P325791

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report

Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326773

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326775

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325860

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325798

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325885

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325802

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325742

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

Reference Method: EPA 8321B
Batch ID: P325694

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P325781

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P325952

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

Reference Method: SM 2540 C-97
 Batch ID: P326091

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P326267

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P325955

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P326023

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

Reference Method: USGS O-2060-01
 Batch ID: P325789

Component	Result	Code	Units
2,4-D	8.0E-04	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	0.0040	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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P326773

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P326775

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P325860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P325798

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325885

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P325802

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P325742

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

Reference Method: EPA 8321B
 Batch ID: P325694

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	76.7		P	40 - 140

Reference Method: SM 2320 B-97
 Batch ID: P325952

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

Reference Method: SM 4500 F-C-97
 Batch ID: P325955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00

Batch ID: P326023

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	90.6		P	85 - 115

Reference Method: USGS O-2060-01

Batch ID: P325789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	66.6		P	40 - 140
Acetaminophen	48.4		P	40 - 140
Bentazon	63.2		P	40 - 140
Carbamazepine	92.2		P	40 - 140
Diuron	89.0		P	40 - 140
Fenuron	88.8		P	40 - 140
Fluridone	85.0		P	40 - 140
Imidacloprid	77.0		P	40 - 160
Linuron	74.6		P	40 - 140
MCP	81.2		P	40 - 140
Primidone	78.6		P	40 - 140
Triclopyr	77.4		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P326773

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901061	Chloride	110		F	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P326775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900983	Sulfate	102		P	90 - 110
1901061	Sulfate	107		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P325860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900918	Ammonia-N	97.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P325798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900919	Kjeldahl Nitrogen	93.5	94.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P325885

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P325885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900973	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P325802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900921	Total-P	104	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P325742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900639	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P325694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900888	Sucralose	99.0	68.0	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P325955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1901062	Fluoride	94.4	98.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P326023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899373	Organic Carbon	89.4	95.9	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P325789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1900995	2,4-D	71.4	63.8	P/P	40 - 140
1900995	Acetaminophen	79.2	75.4	P/P	40 - 140
1900995	Bentazon	31.4	28.0	F/F	40 - 140
1900995	Carbamazepine	69.6	62.2	P/P	40 - 140
1900995	Diuron	57.8	52.0	P/P	40 - 140
1900995	Fenuron	49.4	67.6	P/P	40 - 140
1900995	Fluridone	75.0	65.6	P/P	40 - 140
1900995	Imidacloprid	120	111	P/P	40 - 160
1900995	Linuron	77.0	70.4	P/P	40 - 140
1900995	MCP	64.0	54.2	P/P	40 - 140
1900995	Primidone	64.2	62.4	P/P	40 - 140
1900995	Triclopyr	67.4	63.2	P/P	40 - 140

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900970	Turbidity	1.65	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326773

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901061	Chloride	0.161	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901061	Sulfate	0.331	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900918	Ammonia-N	0.592	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900919	Kjeldahl Nitrogen	0.651	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900973	NO2NO3-N	0.654	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900921	Total-P	3.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900639	O-Phosphate-P	1.57	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P325694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900888	Sucralose	3.15	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P325781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901062	Color (true)	1.27	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901062	Total Alkalinity	0.393	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P326091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900958	TDS	4.72	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325955

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1901062	Fluoride	3.89	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P326023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899373	Organic Carbon	5.81	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P325789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900995	2,4-D	10.5	Spike	P	0 - 30
1900995	Acetaminophen	4.92	Spike	P	0 - 30
1900995	Bentazon	11.4	Spike	P	0 - 30
1900995	Carbamazepine	11.2	Spike	P	0 - 30
1900995	Diuron	10.6	Spike	P	0 - 30
1900995	Fenuron	23.4	Spike	P	0 - 30
1900995	Fluridone	13.4	Spike	P	0 - 30
1900995	Imidacloprid	7.63	Spike	P	0 - 30
1900995	Linuron	8.96	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P325789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1900995	MCP	16.6	Spike	P	0 - 30
1900995	Primidone	2.84	Spike	P	0 - 30
1900995	Triclopyr	6.43	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: 1900964
Field Sample ID: G1WA0065_05232017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	84.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	77.6	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	124	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	127	P	30 - 160
USGS O-2060-01	Diuron-d6	112	P	30 - 160
USGS O-2060-01	Primidone-d5	112	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76634
Included Lab Sample IDs: 1900960

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

Reference Method: SM 2120 B
Run ID: A76656
Included Lab Sample IDs: 1900958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.5	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76659
Included Lab Sample IDs: 1900958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76683
Included Lab Sample IDs: 1900959

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76683

Included Lab Sample IDs: 1900959

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76697

Included Lab Sample IDs: 1900959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.5	94.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76706

Included Lab Sample IDs: 1900959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76727

Included Lab Sample IDs: 1900959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76730

Included Lab Sample IDs: 1900958

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

Reference Method: SM 4500 F-C-97

Run ID: A76730

Included Lab Sample IDs: 1900958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	93.9	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A76745

Included Lab Sample IDs: 1900964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	67.8	66.4	P/P	60 - 150

Reference Method: SM 5310 B-00

Run ID: A76775

Included Lab Sample IDs: 1900959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	90.8	95.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A76863

Included Lab Sample IDs: 1900964

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	94.4	87.2	P/P	50 - 150
Acetaminophen	87.2	85.6	P/P	60 - 150
Bentazon	110	101	P/P	50 - 150
Carbamazepine	93.6	102	P/P	60 - 150
Diuron	91.2	96.8	P/P	60 - 150
Fenuron	93.2	99.2	P/P	60 - 150
Fluridone	92.8	113	P/P	60 - 160
Imidacloprid	84.0	94.4	P/P	60 - 150
Linuron	83.6	96.4	P/P	60 - 150
MCP	92.0	90.4	P/P	50 - 150
Primidone	80.8	89.2	P/P	60 - 150
Triclopyr	86.0	92.4	P/P	50 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77076

Included Lab Sample IDs: 1900958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	98.4	P/P	90 - 110
Sulfate	101	105	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.65	
EPA 300.0 Rev. 2.1	Chloride	107	110		0.161	
	Sulfate	106	107	102	0.331	
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	97.4	98.2		0.592
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.0	93.5	94.3		0.651
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.0	100		0.654
EPA 365.1 Rev. 2.0	Total-P	108	104	100		3.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	101	102		1.57
EPA 8321B	Sucralose	76.7	99.0	68.0		3.15
SM 2120 B	Color (true)				1.27	
SM 2320 B-97	Total Alkalinity	103			0.393	
SM 2540 C-97	TDS				4.72	
SM 4500 F-C-97	Fluoride	92.5	94.4	98.9		3.89
SM 5310 B-00	Organic Carbon	90.6	89.4	95.9		5.81
USGS O-2060-01	2,4-D	66.6	71.4	63.8		10.5
	Acetaminophen	48.4	79.2	75.4		4.92
	Bentazon	63.2	31.4	28.0		11.4
	Carbamazepine	92.2	69.6	62.2		11.2
	Diuron	89.0	57.8	52.0		10.6
	Fenuron	88.8	49.4	67.6		23.4

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
			LCS			
USGS O-2060-01	Fluridone	85.0	75.0	65.6		13.4
	Imidacloprid	77.0	120	111		7.63
	Linuron	74.6	77.0	70.4		8.96
	MCP	81.2	64.0	54.2		16.6
	Primidone	78.6	64.2	62.4		2.84
	Triclopyr	77.4	67.4	63.2		6.43

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1900958
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1900958
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1900958
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1900959
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1900959
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1900959
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1900959
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1900960
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1900964
SM 2120 B / E31780	True Color measured at 450 nm	1900958
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1900958
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1900958
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1900958
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1900958
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1900959
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1900964
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1900964

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	05/23/2017			05/24/2017 16:45	Sima Feizi	1900958
EPA 300.0 Rev. 2.1	05/23/2017			06/13/2017	Julia Storbeck	1900958
EPA 350.1 Rev. 2.0	05/23/2017			05/25/2017	Julia Storbeck	1900959
EPA 351.2 Rev. 2.0	05/23/2017	05/25/2017	Adrian Shelby	05/26/2017	Joseph Suarez	1900959
EPA 353.2 Rev. 2.0	05/23/2017			05/26/2017	Beverly Y. Sanders	1900959
EPA 365.1 Rev. 2.0	05/23/2017	05/25/2017	Adrian Shelby	05/26/2017	Lipi Saha	1900959
EPA 365.1 Rev. 2.0 dissolved	05/23/2017			05/23/2017 15:51	Anthony C. Onicha	1900960
EPA 8321B	05/23/2017	05/27/2017	Mohammad Ghaffari	05/27/2017	Mohammad Ghaffari	1900964
SM 2120 B	05/23/2017			05/24/2017 15:01	Tanya Welborn	1900958
SM 2320 B-97	05/23/2017			05/26/2017	Dale L. Simmons	1900958
SM 2540 C-97	05/23/2017			05/26/2017	Yijie Li	1900958
SM 2540 D-97	05/23/2017			05/26/2017	Yijie Li	1900958
SM 4500 F-C-97	05/23/2017			05/26/2017	Dale L. Simmons	1900958
SM 5310 B-00	05/23/2017			05/31/2017	Julie Michelle Frank	1900959
USGS O-2060-01	05/23/2017	05/30/2017	Hoor Shaik	05/31/2017	Juyoung Kim	1900964