

Chemical Analysis Report

SW-DIST-2017-03-31-01

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

Event Description: **2 SCI REF SITES-TBD**

Request ID: **RQ-2017-03-13-21**

Customer: **SW-DIST**

Project ID: **SCIREF**

Send Reports to:

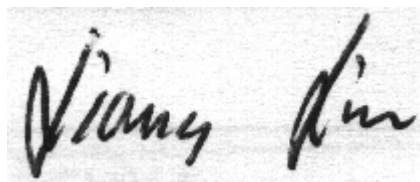
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 21-APR-2017 13:19

A handwritten signature in black ink, appearing to read "Liang Lin", is shown 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: Metals, 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: Livingston Crk

Collection Date/Time: 03/30/2017 12:00

Field ID: LVNGSTNREF

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885069	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P322688	
	EPA 300.0	Bromide**	0.072		mg Br/L	P323611	
	EPA 300.0 Rev. 2.1	Chloride	20	A	mg Cl/L	P323118	
		Sulfate	39	A	mg SO4/L	P323121	
	SM 2120 B	Color (true)	28		PCU	P322590	
	SM 2320 B-97	Total Alkalinity	43		mg CaCO3/L	P323004	
	SM 2540 C-97	TDS	146		mg/L	P322987	
	SM 2540 D-97	TSS	10	I	mg/L	P323024	
	SM 4500 F-C-97	Fluoride	0.093	I	mg F/L	P323007	
1885071	EPA 350.1 Rev. 2.0	Ammonia-N	0.25		mg N/L	P322608	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P322635	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.50		mg N/L	P322722	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P322707	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P322613	
1885080	EPA 200.7 Rev. 4.4	Calcium	19.5		mg/L	P322677	
		Magnesium	9.93		mg/L	P322677	
		Potassium	7.5		mg/L	P322677	
		Sodium	8.2		mg/L	P322677	
1885089	EPA 8321B	Sucralose**	0.042		ug/L	P322530	
	USGS O-2060-01	2,4-D	0.0040	U	ug/L	P322653	MS
		Diuron	0.0040	U	ug/L	P322653	
		Fenuron	0.0080	U	ug/L	P322653	
		Imidacloprid	0.17		ug/L	P322653	
		Bentazon	0.0040	U	ug/L	P322653	MS
		Linuron	0.0040	U	ug/L	P322653	
		Acetaminophen**	0.010	U	ug/L	P322653	
		MCPD	0.0040	U	ug/L	P322653	
		Carbamazepine**	4.0E-04	U	ug/L	P322653	
		Triclopyr**	0.010	U	ug/L	P322653	
		Primidone**	0.0080	U	ug/L	P322653	RPD
		Fluridone**	4.0E-04	U	ug/L	P322653	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: 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: Peace R above Bowleg

Collection Date/Time: 03/30/2017 13:35

Field ID: G3SW0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885070	EPA 180.1 Rev. 2.0	Turbidity	21		NTU	P322688	
	EPA 300.0	Bromide**	0.028	I	mg Br/L	P323611	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P323118	
		Sulfate	10		mg SO4/L	P323121	
	SM 2120 B	Color (true)	76	A	PCU	P322593	

Field ID: G3SW0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885070	SM 2320 B-97	Total Alkalinity	83		mg CaCO3/L	P323004	
	SM 2540 C-97	TDS	172		mg/L	P322987	
	SM 2540 D-97	TSS	31		mg/L	P323024	
	SM 4500 F-C-97	Fluoride	0.50		mg F/L	P323007	
1885072	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P322608	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	4.1		mg N/L	P322635	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P322722	
	EPA 365.1 Rev. 2.0	Total-P	0.43		mg P/L	P322707	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P322613	
1885090	EPA 8321B	Sucralose**	7.2		ug/L	P322530	
	USGS O-2060-01	2,4-D	0.064		ug/L	P322653	MS
		Diuron	0.0040	U	ug/L	P322653	
		Fenuron	0.0080	U	ug/L	P322653	
		Imidacloprid	0.0040	U	ug/L	P322653	
		Bentazon	0.060		ug/L	P322653	MS
		Linuron	0.0040	U	ug/L	P322653	
		Acetaminophen**	0.010	U	ug/L	P322653	
		MCP	0.0040	U	ug/L	P322653	
		Carbamazepine**	0.0071		ug/L	P322653	
		Triclopyr**	0.010	U	ug/L	P322653	
		Primidone**	0.021	I	ug/L	P322653	RPD
		Fluridone**	0.0021		ug/L	P322653	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: 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: Peace R above Bowleg

Collection Date/Time: 03/30/2017 13:35

Field ID: G3SW0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1885112	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P322611	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P322688

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P322677

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322677

Component	Result	Code	Units
Sodium	0.50	U	mg/L

Reference Method: EPA 300.0
Batch ID: P323611

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323118

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323121

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322608

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322635

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322722

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322707

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322611

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: P322530

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P322590

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P322593

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P323004

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

Reference Method: SM 2540 C-97
Batch ID: P322987

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P323024

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322613

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

Reference Method: USGS O-2060-01
Batch ID: P322653

Component	Result	Code	Units
2,4-D	0.0040	U	ug/L
Acetaminophen	0.010	U	ug/L
Bentazon	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: USGS O-2060-01
 Batch ID: P322653

Component	Result	Code	Units
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0040	U	ug/L
Primidone	0.0080	U	ug/L
Triclopyr	0.010	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P322677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	99.6		P	85 - 115
Sodium	101		P	85 - 115

Reference Method: EPA 300.0
 Batch ID: P323611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	90.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323118

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P322608

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P322635

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322722

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322707

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: P322611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.7		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P322530

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	99.6		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P323004

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322613

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

Reference Method: USGS O-2060-01
Batch ID: P322653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	111		P	40 - 140
Acetaminophen	82.0		P	40 - 140
Bentazon	131		P	40 - 140
Carbamazepine	109		P	40 - 140
Diuron	104		P	40 - 140
Fenuron	113		P	40 - 140
Fluridone	94.8		P	40 - 140
Imidacloprid	106		P	40 - 160
Linuron	78.0		P	40 - 140
MCPP	117		P	40 - 140

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P322653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Primidone	114		P	40 - 140
Triclopyr	112		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P322677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1883591	Calcium	99.1		P	80 - 120
1883591	Magnesium	101		P	80 - 120
1883591	Potassium	101		P	80 - 120
1883591	Sodium	101		P	80 - 120
1883594	Calcium	99.9	98.7	P/P	80 - 120
1883594	Magnesium	101	100	P/P	80 - 120
1883594	Potassium	100	99.6	P/P	80 - 120
1883594	Sodium	102	101	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P323611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885069	Bromide	103	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885051	Chloride	98.7		P	90 - 110
1885069	Chloride	99.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885051	Sulfate	95.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885054	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885057	Kjeldahl Nitrogen	105	98.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P322722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885058	NO2NO3-N	97.0	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P322707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885071	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P322611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885112	O-Phosphate-P	94.5	96.0	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P322530

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884563	Sucralose	76.5	76.6	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P323007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885134	Fluoride	98.9	98.9	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P322613

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884977	Organic Carbon	102		P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P322653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1885154	2,4-D	142	139	F/P	40 - 140
1885154	Acetaminophen	65.6	67.2	P/P	40 - 140
1885154	Bentazon	227	243	F/F	40 - 140
1885154	Carbamazepine	81.2	90.0	P/P	40 - 140
1885154	Diuron	82.5	76.9	P/P	40 - 140
1885154	Fenuron	78.8	87.6	P/P	40 - 140
1885154	Fluridone	67.2	70.4	P/P	40 - 140
1885154	Imidacloprid	123	123	P/P	40 - 160
1885154	Linuron	86.8	82.4	P/P	40 - 140
1885154	MCP	109	112	P/P	40 - 140
1885154	Primidone	70.0	98.8	P/P	40 - 140
1885154	Triclopyr	119	102	P/P	40 - 140

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P322688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885051	Turbidity	4.05	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P322677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1883594	Calcium	0.741	Spike	P	0 - 20
1883594	Magnesium	0.575	Spike	P	0 - 20
1883594	Potassium	0.645	Spike	P	0 - 20
1883594	Sodium	1.00	Spike	P	0 - 20

Reference Method: EPA 300.0
 Batch ID: P323611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885069	Bromide	0.300	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885069	Chloride	0.223	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P323121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885069	Sulfate	0.119	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P322608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885054	Ammonia-N	0.952	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P322635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885057	Kjeldahl Nitrogen	4.53	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885058	NO2NO3-N	1.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885071	Total-P	0.459	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885112	O-Phosphate-P	1.36	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P322530

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884563	Sucralose	0.131	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P322590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885131	Color (true)	2.22	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P322593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885070	Color (true)	3.01	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P323004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885134	Total Alkalinity	0.0234	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885131	TDS	3.12	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P323007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885134	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884977	Organic Carbon	0.290	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P322653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1885154	2,4-D	2.00	Spike	P	0 - 30
1885154	Acetaminophen	2.41	Spike	P	0 - 30
1885154	Bentazon	6.81	Spike	P	0 - 30
1885154	Carbamazepine	10.3	Spike	P	0 - 30
1885154	Diuron	5.07	Spike	P	0 - 30
1885154	Fenuron	6.77	Spike	P	0 - 30
1885154	Fluridone	4.60	Spike	P	0 - 30
1885154	Imidacloprid	0.0	Spike	P	0 - 30
1885154	Linuron	5.20	Spike	P	0 - 30
1885154	MCP	3.25	Spike	P	0 - 30
1885154	Primidone	34.1	Spike	F	0 - 30
1885154	Triclopyr	15.2	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: 1885089
Field Sample ID: LVNGSTNREF

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	118	P	40 - 150
USGS O-2060-01	2,4-D-d3	110	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	60.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	80.4	P	40 - 160
USGS O-2060-01	Diuron-d6	75.8	P	40 - 150
USGS O-2060-01	Primidone-d5	78.4	P	40 - 150

Lab Sample ID: 1885090
Field Sample ID: G3SW0042

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	104	P	40 - 150
USGS O-2060-01	2,4-D-d3	105	P	40 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1885090
 Field Sample ID: G3SW0042

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Acetaminophen-d4	41.8	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	51.8	P	40 - 160
USGS O-2060-01	Diuron-d6	42.2	P	40 - 150
USGS O-2060-01	Primidone-d5	70.2	P	40 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
 Run ID: A75503
 Included Lab Sample IDs: 1885069

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

Reference Method: SM 2120 B
 Run ID: A75504
 Included Lab Sample IDs: 1885070

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

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A75505
 Included Lab Sample IDs: 1885071, 1885072

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A75506
 Included Lab Sample IDs: 1885112

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

Reference Method: SM 5310 B-00
 Run ID: A75508
 Included Lab Sample IDs: 1885071, 1885072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	96.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A75544
 Included Lab Sample IDs: 1885069, 1885070

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75553

Included Lab Sample IDs: 1885071, 1885072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	94.5	93.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75568

Included Lab Sample IDs: 1885071, 1885072

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	110	P/P	90 - 110
Kjeldahl Nitrogen	99.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75582

Included Lab Sample IDs: 1885071

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A75593

Included Lab Sample IDs: 1885080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.1	98.8	P/P	90 - 110
Magnesium	98.4	100	P/P	90 - 110
Potassium	99.1	98.7	P/P	90 - 110
Sodium	98.2	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75634

Included Lab Sample IDs: 1885072

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

Reference Method: SM 2320 B-97

Run ID: A75665

Included Lab Sample IDs: 1885069, 1885070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	107	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75665

Included Lab Sample IDs: 1885069, 1885070

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A75673

Included Lab Sample IDs: 1885089, 1885090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	124	129	P/P	60 - 150

Reference Method: USGS O-2060-01

Run ID: A75682

Included Lab Sample IDs: 1885089, 1885090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	123	86.4	P/P	60 - 150
Carbamazepine	118	126	P/P	60 - 150
Diuron	110	106	P/P	60 - 150
Fenuron	112	118	P/P	60 - 150
Fluridone	107	101	P/P	60 - 150
Imidacloprid	96.8	92.0	P/P	60 - 150
Linuron	150	112	P/P	60 - 150
Primidone	80.0	116	P/P	60 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75723

Included Lab Sample IDs: 1885069, 1885070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Chloride	97.9	100	P/P	90 - 110
Sulfate	101	98.0	P/P	90 - 110
Sulfate	93.7	98.2	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A75741

Included Lab Sample IDs: 1885089, 1885090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	119	125	P/P	50 - 150
Bentazon	94.4	88.8	P/P	50 - 150
MCP	93.8	127	P/P	50 - 150
Triclopyr	111	109	P/P	50 - 150

Reference Method: EPA 300.0

Run ID: A75857

Included Lab Sample IDs: 1885069, 1885070

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	100	102	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			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.05	
EPA 200.7 Rev. 4.4	Calcium	103	99.1	99.9	98.7		0.741
	Magnesium	101	101	101	100		0.575
	Potassium	99.6	101	100	99.6		0.645
	Sodium	101	101	102	101		1.00
EPA 300.0	Bromide	90.3	103	103			0.300
EPA 300.0 Rev. 2.1	Chloride	101	99.0	98.7		0.223	
	Sulfate	97.3	95.6			0.119	
EPA 350.1 Rev. 2.0	Ammonia-N	103	103	102			0.952
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	105	98.6			4.53
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	97.0	94.5			1.62
EPA 365.1 Rev. 2.0	Total-P	103	107	107			0.459
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	94.5	96.0			1.36
EPA 8321B	Sucralose	99.6	76.5	76.6			0.131
SM 2120 B	Color (true)					2.22	
	Color (true)					3.01	
SM 2320 B-97	Total Alkalinity	105				0.0234	
SM 2540 C-97	TDS					3.12	
SM 4500 F-C-97	Fluoride	97.4	98.9	98.9			0.0
SM 5310 B-00	Organic Carbon	97.8	102				0.290
USGS O-2060-01	2,4-D	111	142	139			2.00
	Acetaminophen	82.0	65.6	67.2			2.41
	Bentazon	131	227	243			6.81
	Carbamazepine	109	81.2	90.0			10.3
	Diuron	104	82.5	76.9			5.07
	Fenuron	113	78.8	87.6			6.77
	Fluridone	94.8	67.2	70.4			4.60
	Imidacloprid	106	123	123			0.0
	Linuron	78.0	86.8	82.4			5.20
	MCPP	117	109	112			3.25
	Primidone	114	70.0	98.8			34.1
	Triclopyr	112	119	102			15.2

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1885069, 1885070
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1885080
EPA 300.0 / E31780	Bromide in aqueous matrices	1885069, 1885070
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1885069, 1885070
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1885069, 1885070
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1885071, 1885072
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1885071, 1885072
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1885071, 1885072
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1885071, 1885072
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1885112

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1885089, 1885090
SM 2120 B / E31780	True Color measured at 450 nm	1885069, 1885070
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1885069, 1885070
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1885069, 1885070
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1885069, 1885070
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1885069, 1885070
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1885071, 1885072
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1885089, 1885090
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1885089, 1885090

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	03/31/2017			03/31/2017 15:55	Blanca Fach	1885069, 1885070
EPA 200.7 Rev. 4.4	03/31/2017	04/03/2017	Elliott D. Healy	04/05/2017	Martin Acosta	1885080
EPA 300.0	03/31/2017			04/18/2017	Ping Hua	1885069, 1885070
EPA 300.0 Rev. 2.1	03/31/2017			04/11/2017	Ping Hua	1885069, 1885070
EPA 350.1 Rev. 2.0	03/31/2017			03/31/2017	Julie Michelle Frank	1885071, 1885072
EPA 351.2 Rev. 2.0	03/31/2017	04/03/2017	Adrian Shelby	04/04/2017	Joseph Suarez	1885071, 1885072
EPA 353.2 Rev. 2.0	03/31/2017			04/04/2017	Beverly Y. Sanders	1885071, 1885072
EPA 365.1 Rev. 2.0	03/31/2017	04/04/2017	Adrian Shelby	04/05/2017	Lipi Saha	1885071
	03/31/2017	04/04/2017	Adrian Shelby	04/06/2017	Lipi Saha	1885072
EPA 365.1 Rev. 2.0 dissolved	03/31/2017			03/31/2017 15:18	Anthony C. Onicha	1885112
EPA 8321B	03/31/2017	04/07/2017	Mohammad Ghaffari	04/07/2017	Mohammad Ghaffari	1885089, 1885090
SM 2120 B	03/31/2017			03/31/2017 14:35	Julia Storbeck	1885069
	03/31/2017			03/31/2017 15:36	Julia Storbeck	1885070
SM 2320 B-97	03/31/2017			04/07/2017	Dale L. Simmons	1885069, 1885070
SM 2540 C-97	03/31/2017			04/05/2017	Yijie Li	1885069, 1885070
SM 2540 D-97	03/31/2017			04/05/2017	Yijie Li	1885069, 1885070
SM 4500 F-C-97	03/31/2017			04/07/2017	Dale L. Simmons	1885069, 1885070
SM 5310 B-00	03/31/2017			03/31/2017	Christopher Armour	1885071, 1885072
USGS O-2060-01	03/31/2017	04/06/2017	Fe-Val Siddell	04/08/2017	Juyoung Kim	1885089, 1885090
	03/31/2017	04/06/2017	Fe-Val Siddell	04/12/2017	Juyoung Kim	1885089, 1885090