

Chemical Analysis Report

SO-DIST-2017-05-11-03

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

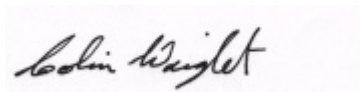
Event Description: **SMP: Peace River Streams**
Request ID: **RQ-2017-05-01-15**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Ben Paswater

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 08-JUN-2017 09:34



NON-CONFORMANCE REPORT INCLUDED

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: SHELL CR. @ SR 31

Collection Date/Time: 05/10/2017 08:30

Field ID: G3SD051017-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898612	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P325130	
	EPA 300.0 Rev. 2.1	Chloride	440		mg Cl/L	P325828	
		Sulfate	150		mg SO4/L	P325832	
	SM 2120 B	Color (true)	42	A	PCU	P325137	
	SM 2320 B-97	Total Alkalinity	147		mg CaCO3/L	P325590	
	SM 2540 C-97	TDS	1.28E+03		mg/L	P325654	
	SM 2540 D-97	TSS	30		mg/L	P325533	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P325593	
1898616	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P325119	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P325394	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P325354	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P325252	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P325517	
1898620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P325174	
1898663	EPA 200.7 Rev. 4.4	Calcium	136		mg/L	P325443	
		Iron	1.14E+03		ug/L	P325443	
		Magnesium	35.1		mg/L	P325443	
		Potassium	11.7		mg/L	P325443	
		Sodium	213		mg/L	P325443	
	EPA 200.8 Rev. 5.4	Zinc	5.7	I	ug/L	P325443	
		Arsenic	1.00		ug/L	P325892	
		Cadmium	0.020	U	ug/L	P325892	
		Chromium	1.4	I	ug/L	P325892	
		Copper	2.79		ug/L	P325892	
		Lead	0.57		ug/L	P325892	
		Nickel	1.01		ug/L	P325892	
		Silver	0.010	U	ug/L	P325892	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: MYRTLE SLOUGH @ SR 31

Collection Date/Time: 05/10/2017 08:45

Field ID: G3SD051017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898613	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P325130	
	EPA 300.0 Rev. 2.1	Chloride	230		mg Cl/L	P325898	
		Sulfate	89		mg SO4/L	P325901	
	SM 2120 B	Color (true)	47		PCU	P325133	
	SM 2320 B-97	Total Alkalinity	190		mg CaCO3/L	P325591	
	SM 2540 C-97	TDS	828		mg/L	P325654	
	SM 2540 D-97	TSS	3	I	mg/L	P325533	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P325594	
1898617	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P325119	

Field ID: G3SD051017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898617	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P325394	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325355	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P325252	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P325517	
1898621	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P325174	

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: MYRTLE SLOUGH @ SR 31

Collection Date/Time: 05/10/2017 08:45

Field ID: G3SD051017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898636	EPA 8321B	Sucralose**	0.020	I	ug/L	P324900	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P324958	
		Diuron	0.0030	I	ug/L	P324958	
		Fenuron	0.012	I	ug/L	P324958	
		Imidacloprid	0.031		ug/L	P324958	MS
		Bentazon	8.0E-04	U	ug/L	P324958	
		Linuron	0.0040	U	ug/L	P324958	
		Acetaminophen**	0.0080	U	ug/L	P324958	
		MCPD	8.0E-04	U	ug/L	P324958	
		Carbamazepine**	4.0E-04	U	ug/L	P324958	
		Triclopyr**	0.0040	U	ug/L	P324958	
		Primidone**	0.0040	U	ug/L	P324958	
		Fluridone**	0.0064		ug/L	P324958	

Sample Location: FIELD BLANK

Collection Date/Time: 05/10/2017 14:30

Field ID: G3SD051017-B

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898624	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P325131	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P325898	
		Sulfate	0.20	U	mg SO4/L	P325901	
		Color (true)	2.5	U	PCU	P325138	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P325592	
	SM 2540 C-97	TDS	15	U	mg/L	P325654	
	SM 2540 D-97	TSS	2	U	mg/L	P325533	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325595	RPD
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325119	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P325450	
1898625	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325355	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P325252	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P325517	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325174	
1898638	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P325443	

Field ID: G3SD051017-B

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898638	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P325443	
		Magnesium	0.040	U	mg/L	P325443	
		Potassium	0.30	U	mg/L	P325443	
		Sodium	0.50	U	mg/L	P325443	
		Zinc	5.0	U	ug/L	P325443	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P325892	
		Cadmium	0.020	U	ug/L	P325892	
		Chromium	0.40	U	ug/L	P325892	
		Copper	0.20	U	ug/L	P325892	
		Lead	0.050	U	ug/L	P325892	
		Nickel	0.20	U	ug/L	P325892	
		Silver	0.010	U	ug/L	P325892	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: HAWTHORNE CREEK @ REYNOLDS ST.

Collection Date/Time: 05/10/2017 10:10

Field ID: G3SD051017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898614	EPA 180.1 Rev. 2.0	Turbidity	8.5		NTU	P325131	
	EPA 300.0 Rev. 2.1	Chloride	210		mg Cl/L	P325898	
		Sulfate	75		mg SO4/L	P325901	
		Color (true)	43		PCU	P325138	
	SM 2320 B-97	Total Alkalinity	216		mg CaCO3/L	P325591	
	SM 2540 C-97	TDS	813		mg/L	P325654	
	SM 2540 D-97	TSS	35		mg/L	P325533	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P325594	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.071	Y	mg N/L	P325119	
		Kjeldahl Nitrogen	0.91	Y	mg N/L	P325450	
1898618	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036	Y	mg N/L	P325355	
	EPA 365.1 Rev. 2.0	Total-P	0.66	Y	mg P/L	P325252	
	SM 5310 B-00	Organic Carbon	10	Y	mg C/L	P325517	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.41		mg P/L	P325174	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: NO2NO3-N: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: HAWTHORNE CREEK @ REYNOLDS ST.

Collection Date/Time: 05/10/2017 10:10

Field ID: G3SD051017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898637	EPA 8321B	Sucralose**	0.012	I	ug/L	P324900	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P324958	

Field ID: G3SD051017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898637	USGS O-2060-01	Diuron	0.011		ug/L	P324958	
		Fenuron	0.013	I	ug/L	P324958	
		Imidacloprid	0.064		ug/L	P324958	MS
		Bentazon	8.0E-04	U	ug/L	P324958	
		Linuron	0.0040	U	ug/L	P324958	
		Acetaminophen**	0.0080	U	ug/L	P324958	
		MCP	8.0E-04	U	ug/L	P324958	
		Carbamazepine**	7.2E-04	I	ug/L	P324958	
		Triclopyr**	0.0040	U	ug/L	P324958	
		Primidone**	0.0040	U	ug/L	P324958	
		Fluridone**	4.0E-04	U	ug/L	P324958	

Ref. Method and Comment:
 USGS O-2060-01: Indaziflam = 0.0014 I ug/L.

Sample Location: HOG BAY @ CR 763

Collection Date/Time: 05/10/2017 09:45

Field ID: G3SD051017-2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898615	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P325131	
	EPA 300.0 Rev. 2.1	Chloride	200		mg Cl/L	P325898	
		Sulfate	150		mg SO4/L	P325901	
	SM 2120 B	Color (true)	69	A	PCU	P325138	
	SM 2320 B-97	Total Alkalinity	195		mg CaCO3/L	P325591	
	SM 2540 C-97	TDS	814	A	mg/L	P325654	
	SM 2540 D-97	TSS	3	IA	mg/L	P325533	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P325594	
1898619	EPA 350.1 Rev. 2.0	Ammonia-N	0.098		mg N/L	P325119	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P325450	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.072		mg N/L	P325355	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P325252	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P325517	
1898623	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.096		mg P/L	P325174	

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: MYRTLE SLOUGH @ SR31

Collection Date/Time: 05/10/2017 08:45

Field ID: G3SD051017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898664	EPA 200.7 Rev. 4.4	Calcium	117		mg/L	P325443	
		Iron	300		ug/L	P325443	
		Magnesium	20.7		mg/L	P325443	
		Potassium	10.1		mg/L	P325443	
		Sodium	109		mg/L	P325443	
		Zinc	5.0	U	ug/L	P325443	
	EPA 200.8 Rev. 5.4	Arsenic	1.14		ug/L	P325892	

Field ID: G3SD051017-1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898664	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P325892	
		Chromium	0.40	U	ug/L	P325892	
		Copper	0.55	I	ug/L	P325892	
		Lead	0.050	U	ug/L	P325892	
		Nickel	1.66		ug/L	P325892	
		Silver	0.010	U	ug/L	P325892	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: HAWTHORNE CREEK @ REYNOLDS ST.

Collection Date/Time: 05/10/2017 10:10

Field ID: G3SD051017-4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1898665	EPA 200.7 Rev. 4.4	Calcium	132		mg/L	P325443	
		Iron	840		ug/L	P325443	
		Magnesium	24.8		mg/L	P325443	
		Potassium	7.5		mg/L	P325443	
		Sodium	79.7		mg/L	P325443	
		Zinc	5.0	U	ug/L	P325443	
	EPA 200.8 Rev. 5.4	Arsenic	3.95		ug/L	P325892	
		Cadmium	0.023	I	ug/L	P325892	
		Chromium	0.83	I	ug/L	P325892	
		Copper	0.62	I	ug/L	P325892	
		Lead	0.21		ug/L	P325892	
		Nickel	1.58		ug/L	P325892	
		Silver	0.010	U	ug/L	P325892	

Ref. Method and Comment:

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Non-Conformance Report

NCR ID: 6416

Event(s)

SO-DIST-2017-05-11-03

Job(s)

TLH-2017-05-11-73

Sample(s)

1898618

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample(s) not preserved to pH<2.

Resolution: Sample was preserved with sulfuric acid in the laboratory on 05/11/2017 at 11:45 am.

Authorized by/Date: Bettina S. Steinbock 6/6/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325130

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325131

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325443

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325892

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325828

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325832

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325898

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325901

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325119

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325394

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325450

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325355

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325252

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325174

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

Reference Method: EPA 8321B
Batch ID: P324900

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P325133

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P325137

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P325138

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325590

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

Reference Method: SM 2320 B-97
Batch ID: P325591

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

Reference Method: SM 2320 B-97
Batch ID: P325592

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

Reference Method: SM 2540 C-97
Batch ID: P325654

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325533

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
 Batch ID: P325594

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P325595

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P325517

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

Reference Method: USGS O-2060-01
 Batch ID: P324958

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	8.0E-04	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 200.7 Rev. 4.4
 Batch ID: P325443

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	109		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	98.9		P	85 - 115
Sodium	102		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P325892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.8		P	85 - 115
Cadmium	95.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325892

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	95.2		P	85 - 115
Copper	95.8		P	85 - 115
Lead	99.1		P	85 - 115
Nickel	97.4		P	85 - 115
Silver	98.4		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325828

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325832

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325898

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325119

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325394

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325450

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325355

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325252

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325174

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

Reference Method: EPA 8321B
Batch ID: P324900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	89.1		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P325590

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

Reference Method: SM 2320 B-97
Batch ID: P325591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P325592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.7		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P325594

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P325517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	87.6		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P324958

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	65.0		P	40 - 140
Acetaminophen	81.3		P	40 - 140
Bentazon	56.7		P	40 - 140
Carbamazepine	88.2		P	40 - 140
Diuron	117		P	40 - 140
Fenuron	117		P	40 - 140
Fluridone	94.2		P	40 - 140
Imidacloprid	113		P	40 - 160
Linuron	111		P	40 - 140
MCP	69.0		P	40 - 140
Primidone	101		P	40 - 140
Triclopyr	66.6		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898374	Calcium	98.3		P	80 - 120
1898374	Iron	108	112	P/P	80 - 120
1898374	Magnesium	103		P	80 - 120
1898374	Potassium	99.6	99.9	P/P	80 - 120
1898374	Sodium	100		P	80 - 120
1898374	Zinc	98.2	100	P/P	80 - 120
1898541	Iron	108		P	80 - 120
1898541	Magnesium	103		P	80 - 120
1898541	Potassium	98.2		P	80 - 120
1898541	Sodium	101		P	80 - 120
1898541	Zinc	102		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325892

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898077	Arsenic	103	102	P/P	80 - 120
1898077	Cadmium	100	100	P/P	80 - 120
1898077	Chromium	96.6	96.6	P/P	80 - 120
1898077	Copper	94.2	94.3	P/P	80 - 120
1898077	Lead	101	99.4	P/P	80 - 120
1898077	Nickel	96.6	96.2	P/P	80 - 120
1898077	Silver	99.4	98.6	P/P	80 - 120
1898664	Arsenic	107		P	80 - 120
1898664	Cadmium	101		P	80 - 120
1898664	Chromium	94.1		P	80 - 120
1898664	Copper	95.8		P	80 - 120
1898664	Lead	103		P	80 - 120
1898664	Nickel	97.1		P	80 - 120
1898664	Silver	99.9		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325828

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898480	Chloride	99.4		P	90 - 110
1898482	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898480	Sulfate	97.1		P	90 - 110
1898482	Sulfate	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898960	Chloride	95.3		P	90 - 110
1898993	Chloride	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898960	Sulfate	93.2		P	90 - 110
1898993	Sulfate	94.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898484	Ammonia-N	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898515	Kjeldahl Nitrogen	99.0	93.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898619	Kjeldahl Nitrogen	95.0	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898419	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898617	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898514	Total-P	96.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898620	O-Phosphate-P	97.8	98.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P324900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897662	Sucralose	91.7	96.9	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898370	Fluoride	99.0	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898378	Fluoride	98.7	95.7	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
 Batch ID: P325595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898380	Fluoride	95.5	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P325517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898484	Organic Carbon	88.8	90.4	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P324958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897361	2,4-D	67.6	62.2	P/P	40 - 140
1897361	Acetaminophen	80.7	96.1	P/P	40 - 140
1897361	Bentazon	64.4	58.9	P/P	40 - 140
1897361	Carbamazepine	76.0	76.4	P/P	40 - 140
1897361	Diuron	89.9	83.7	P/P	40 - 140
1897361	Fenuron	80.1	77.8	P/P	40 - 140
1897361	Fluridone	66.7	54.6	P/P	40 - 140
1897361	Imidacloprid	201	188	F/F	40 - 160
1897361	Linuron	101	95.8	P/P	40 - 140
1897361	MCP	59.3	55.9	P/P	40 - 140
1897361	Primidone	100	97.5	P/P	40 - 140
1897361	Triclopyr	58.8	57.9	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P325130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898512	Turbidity	1.33	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P325131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898481	Turbidity	0.861	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P325443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898374	Calcium	0.133	Spike	P	0 - 20
1898374	Iron	3.60	Spike	P	0 - 20
1898374	Magnesium	1.49	Spike	P	0 - 20
1898374	Potassium	0.311	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898374	Sodium	0.311	Spike	P	0 - 20
1898374	Zinc	2.25	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898077	Arsenic	0.846	Spike	P	0 - 20
1898077	Cadmium	0.0788	Spike	P	0 - 20
1898077	Chromium	0.00758	Spike	P	0 - 20
1898077	Copper	0.115	Spike	P	0 - 20
1898077	Lead	1.11	Spike	P	0 - 20
1898077	Nickel	0.434	Spike	P	0 - 20
1898077	Silver	0.860	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898482	Chloride	0.0329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898482	Sulfate	0.709	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898960	Chloride	0.0573	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898960	Sulfate	0.221	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898484	Ammonia-N	0.105	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898515	Kjeldahl Nitrogen	3.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898619	Kjeldahl Nitrogen	3.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898419	NO2NO3-N	0.442	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898617	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898514	Total-P	2.98	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898620	O-Phosphate-P	0.221	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P324900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897662	Sucralose	5.43	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P325133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898519	Color (true)	1.49	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P325137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898612	Color (true)	2.00	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P325138

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898615	Color (true)	1.55	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898370	Total Alkalinity	0.201	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898378	Total Alkalinity	3.21	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	Total Alkalinity	0.354	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P325654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898615	TDS	0.369	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898370	Fluoride	1.00	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898378	Fluoride	2.57	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P325595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898380	Fluoride	3.58	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P325517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898484	Organic Carbon	0.925	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P324958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897361	2,4-D	7.18	Spike	P	0 - 30
1897361	Acetaminophen	17.4	Spike	P	0 - 30
1897361	Bentazon	6.98	Spike	P	0 - 30
1897361	Carbamazepine	0.466	Spike	P	0 - 30
1897361	Diuron	7.00	Spike	P	0 - 30
1897361	Fenuron	2.84	Spike	P	0 - 30
1897361	Fluridone	10.1	Spike	P	0 - 30
1897361	Imidacloprid	6.57	Spike	P	0 - 30
1897361	Linuron	4.89	Spike	P	0 - 30
1897361	MCP	5.68	Spike	P	0 - 30
1897361	Primidone	2.79	Spike	P	0 - 30
1897361	Triclopyr	1.58	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: 1898636
Field Sample ID: G3SD051017-1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	142	P	40 - 150
USGS O-2060-01	2,4-D-d3	79.6	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	104	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	80.7	P	30 - 160
USGS O-2060-01	Diuron-d6	73.1	P	30 - 150
USGS O-2060-01	Primidone-d5	81.2	P	30 - 150

Lab Sample ID: 1898637
Field Sample ID: G3SD051017-4

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	127	P	40 - 150
USGS O-2060-01	2,4-D-d3	80.8	P	30 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1898637

Field Sample ID: G3SD051017-4

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
USGS O-2060-01	Acetaminophen-d4	96.6	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	87.4	P	30 - 160
USGS O-2060-01	Diuron-d6	79.8	P	30 - 150
USGS O-2060-01	Primidone-d5	85.1	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76358

Included Lab Sample IDs: 1898616, 1898617, 1898618, 1898619, 1898625

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76360

Included Lab Sample IDs: 1898612, 1898613, 1898614, 1898615, 1898624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A76361

Included Lab Sample IDs: 1898613

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

Reference Method: SM 2120 B

Run ID: A76362

Included Lab Sample IDs: 1898612, 1898614, 1898615, 1898624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	85 - 115
Color (true)	103	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76368

Included Lab Sample IDs: 1898620, 1898621, 1898622, 1898623, 1898626

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.4	98.1	P/P	90 - 110
O-Phosphate-P	97.8	99.4	P/P	90 - 110
O-Phosphate-P	98.1	96.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76449

Included Lab Sample IDs: 1898616, 1898617, 1898618, 1898619, 1898625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110
NO2NO3-N	99.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76452

Included Lab Sample IDs: 1898616, 1898618, 1898619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110
Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76456

Included Lab Sample IDs: 1898617, 1898625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76527

Included Lab Sample IDs: 1898616, 1898617, 1898618, 1898619, 1898625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.7	93.1	P/P	90 - 110
Organic Carbon	94.0	92.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76544

Included Lab Sample IDs: 1898616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76549

Included Lab Sample IDs: 1898617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	108	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A76559

Included Lab Sample IDs: 1898636, 1898637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	61.2	104	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A76561

Included Lab Sample IDs: 1898612, 1898613, 1898614, 1898615, 1898624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	104	101	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76561

Included Lab Sample IDs: 1898612, 1898613, 1898614, 1898615, 1898624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	95.5	98.1	P/P	90 - 110
Fluoride	98.1	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76562

Included Lab Sample IDs: 1898618, 1898619, 1898625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	102	P/P	90 - 110
Kjeldahl Nitrogen	108	107	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A76569

Included Lab Sample IDs: 1898636, 1898637

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.4	95.6	P/P	50 - 150
Acetaminophen	95.6	94.8	P/P	60 - 150
Bentazon	101	98.8	P/P	50 - 150
Carbamazepine	111	105	P/P	60 - 150
Diuron	103	98.4	P/P	60 - 150
Fenuron	107	103	P/P	60 - 150
Fluridone	111	101	P/P	60 - 150
Imidacloprid	95.6	99.2	P/P	60 - 150
Linuron	100	94.0	P/P	60 - 150
MCP	92.8	94.8	P/P	50 - 150
Primidone	97.6	80.4	P/P	60 - 150
Triclopyr	100	101	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76576

Included Lab Sample IDs: 1898638, 1898663, 1898664, 1898665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	98.5	P/P	90 - 110
Calcium	99.4	102	P/P	90 - 110
Iron	104	107	P/P	90 - 110
Iron	105	105	P/P	90 - 110
Magnesium	103	104	P/P	90 - 110
Magnesium	104	102	P/P	90 - 110
Potassium	100	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76576

Included Lab Sample IDs: 1898638, 1898663, 1898664, 1898665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	99.4	99.5	P/P	90 - 110
Sodium	101	98.2	P/P	90 - 110
Sodium	98.7	102	P/P	90 - 110
Zinc	102	105	P/P	90 - 110
Zinc	103	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76672

Included Lab Sample IDs: 1898612, 1898613, 1898614, 1898615, 1898624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	101	P/P	90 - 110
Sulfate	94.2	96.7	P/P	90 - 110
Sulfate	96.7	94.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A76756

Included Lab Sample IDs: 1898638, 1898663, 1898664, 1898665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	100	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Arsenic	100	102	P/P	90 - 110
Cadmium	96.1	97.6	P/P	90 - 110
Cadmium	97.2	96.1	P/P	90 - 110
Cadmium	97.6	96.5	P/P	90 - 110
Chromium	97.4	98.6	P/P	90 - 110
Chromium	98.1	97.4	P/P	90 - 110
Chromium	98.6	97.5	P/P	90 - 110
Copper	102	98.4	P/P	90 - 110
Copper	99.2	102	P/P	90 - 110
Copper	99.4	99.2	P/P	90 - 110
Lead	100	99.6	P/P	90 - 110
Lead	102	99.9	P/P	90 - 110
Lead	99.6	102	P/P	90 - 110
Nickel	101	98.9	P/P	90 - 110
Nickel	99.3	99.4	P/P	90 - 110
Nickel	99.4	101	P/P	90 - 110
Silver	104	105	P/P	90 - 110
Silver	104	104	P/P	90 - 110
Silver	105	104	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						1.33	
	Turbidity						0.861	
EPA 200.7 Rev. 4.4	Calcium	102	98.3					0.133
	Iron	109	108	112	108			3.60
	Magnesium	105	103	103				1.49
	Potassium	98.9	99.6	99.9	98.2			0.311
	Sodium	102	100	101				0.311
	Zinc	101	98.2	100	102			2.25
EPA 200.8 Rev. 5.4	Arsenic	99.8	103	102	107			0.846
	Cadmium	95.6	100	100	101			0.0788
	Chromium	95.2	96.6	96.6	94.1			0.0075
	Copper	95.8	94.2	94.3	95.8			0.115
	Lead	99.1	101	99.4	103			1.11
	Nickel	97.4	96.6	96.2	97.1			0.434
	Silver	98.4	99.4	98.6	99.9			0.860
EPA 300.0 Rev. 2.1	Chloride	101	98.8	99.4			0.0329	
	Chloride	98.4	95.3	98.4			0.0573	
	Sulfate	97.3	96.6	97.1			0.709	
	Sulfate	94.3	93.2	94.7			0.221	
EPA 350.1 Rev. 2.0	Ammonia-N	104	103	103				0.105
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.7	99.0	93.9				3.27
	Kjeldahl Nitrogen	103	95.0	102				3.42
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	101				0.442
	NO2NO3-N	100	100	100				0.499
EPA 365.1 Rev. 2.0	Total-P	101	96.8	100				2.98
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.5	97.8	98.1				0.221
EPA 8321B	Sucralose	89.1	91.7	96.9				5.43
SM 2120 B	Color (true)						1.49	
	Color (true)						2.00	
	Color (true)						1.55	
SM 2320 B-97	Total Alkalinity	103					0.201	
	Total Alkalinity	104					3.21	
	Total Alkalinity	104					0.354	
SM 2540 C-97	TDS						0.369	
SM 4500 F-C-97	Fluoride	92.7	99.0	100				1.00
	Fluoride	94.2	98.7	95.7				2.57
	Fluoride	99.1	95.5	99.7				3.58
SM 5310 B-00	Organic Carbon	87.6	88.8	90.4				0.925
USGS O-2060-01	2,4-D	65.0	67.6	62.2				7.18
	Acetaminophen	81.3	80.7	96.1				17.4
	Bentazon	56.7	64.4	58.9				6.98
	Carbamazepine	88.2	76.0	76.4				0.466
	Diuron	117	89.9	83.7				7.00
	Fenuron	117	80.1	77.8				2.84
	Fluridone	94.2	66.7	54.6				10.1
	Imidacloprid	113	201	188				6.57
	Linuron	111	101	95.8				4.89
	MCP	69.0	59.3	55.9				5.68
	Primidone	101	100	97.5				2.79
	Triclopyr	66.6	58.8	57.9				1.58

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1898612, 1898613, 1898614, 1898615, 1898624
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1898638, 1898663, 1898664, 1898665
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1898638, 1898663, 1898664, 1898665
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1898612, 1898613, 1898614, 1898615, 1898624
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1898612, 1898613, 1898614, 1898615, 1898624
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1898616, 1898617, 1898618, 1898619, 1898625
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1898616, 1898617, 1898618, 1898619, 1898625
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1898616, 1898617, 1898618, 1898619, 1898625
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1898616, 1898617, 1898618, 1898619, 1898625
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1898620, 1898621, 1898622, 1898623, 1898626
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1898636, 1898637
SM 2120 B / E31780	True Color measured at 450 nm	1898612, 1898613, 1898614, 1898615, 1898624
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1898612, 1898613, 1898614, 1898615, 1898624
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1898612, 1898613, 1898614, 1898615, 1898624
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1898612, 1898613, 1898614, 1898615, 1898624
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1898612, 1898613, 1898614, 1898615, 1898624
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1898616, 1898617, 1898618, 1898619, 1898625
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1898636, 1898637
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1898636, 1898637

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	05/11/2017			05/11/2017 15:50	Sima Feizi	1898612, 1898613, 1898614, 1898615, 1898624
EPA 200.7 Rev. 4.4	05/11/2017	05/17/2017	Elliott D. Healy	05/20/2017	Martin Acosta	1898638, 1898663, 1898664, 1898665
EPA 200.8 Rev. 5.4	05/11/2017	05/26/2017	Elliott D. Healy	05/30/2017	Robert K Palmer	1898638, 1898663, 1898664, 1898665
EPA 300.0 Rev. 2.1	05/11/2017			05/25/2017	Ping Hua	1898612, 1898613, 1898614, 1898615, 1898624
EPA 350.1 Rev. 2.0	05/11/2017			05/11/2017	Julie Michelle Frank	1898616, 1898617, 1898618, 1898619, 1898625
EPA 351.2 Rev. 2.0	05/11/2017	05/17/2017	Adrian Shelby	05/19/2017	Joseph Suarez	1898616, 1898617
	05/11/2017	05/18/2017	Adrian Shelby	05/19/2017	Joseph Suarez	1898618, 1898619, 1898625
EPA 353.2 Rev. 2.0	05/11/2017			05/16/2017	Beverly Y. Sanders	1898616, 1898617, 1898618, 1898619, 1898625
EPA 365.1 Rev. 2.0	05/11/2017	05/15/2017	Vijayalakshmi Reddy	05/16/2017	Lipi Saha	1898616, 1898617, 1898618, 1898619, 1898625
EPA 365.1 Rev. 2.0 dissolved	05/11/2017			05/11/2017 15:09	Anthony C. Onicha	1898620
	05/11/2017			05/11/2017 16:01	Anthony C. Onicha	1898621
	05/11/2017			05/11/2017 16:02	Anthony C. Onicha	1898622
	05/11/2017			05/11/2017 16:06	Anthony C. Onicha	1898623
	05/11/2017			05/11/2017 16:12	Anthony C. Onicha	1898626
EPA 8321B	05/11/2017	05/18/2017	Mohammad Ghaffari	05/19/2017	Mohammad Ghaffari	1898636, 1898637
SM 2120 B	05/11/2017			05/11/2017 16:45	Julia Storbeck	1898613
	05/11/2017			05/11/2017 17:46	Julia Storbeck	1898612
	05/11/2017			05/11/2017 17:49	Julia Storbeck	1898614
	05/11/2017			05/11/2017 17:51	Julia Storbeck	1898615
	05/11/2017			05/11/2017 17:52	Julia Storbeck	1898624
SM 2320 B-97	05/11/2017			05/20/2017	Dale L. Simmons	1898612, 1898613, 1898614, 1898615, 1898624
SM 2540 C-97	05/11/2017			05/15/2017	Sima Feizi	1898612, 1898613, 1898614, 1898615, 1898624
SM 2540 D-97	05/11/2017			05/15/2017	Sima Feizi	1898612, 1898613, 1898614, 1898615, 1898624
SM 4500 F-C-97	05/11/2017			05/20/2017	Dale L. Simmons	1898612, 1898613, 1898614, 1898615, 1898624
SM 5310 B-00	05/11/2017			05/17/2017	Christopher Armour	1898616, 1898617, 1898618, 1898619, 1898625
USGS O-2060-01	05/11/2017	05/15/2017	Hoor Shaik	05/20/2017	Juyoung Kim	1898636, 1898637