

Chemical Analysis Report

WQAP-2017-04-28-03

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

Event Description: **RUN 4**
Request ID: **RQ-2017-04-24-23**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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Certified by: Colin Wright, Program Administrator

Date Certified: 26-MAY-2017 15:43

A handwritten signature in black ink, appearing to read "Colin Wright", is written over a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: 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: MCKAY CRK

Collection Date/Time: 04/27/2017 12:00

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894307	EPA 8321B	Sucralose**	2.2		ug/L	P324163	
	USGS O-2060-01	2,4-D	0.0034		ug/L	P324171	
		Diuron	0.0026	I	ug/L	P324171	
		Fenuron	0.016	I	ug/L	P324171	
		Imidacloprid	0.016		ug/L	P324171	MS
		Bentazon	0.029		ug/L	P324171	
		Linuron	0.0040	U	ug/L	P324171	
		Acetaminophen**	0.0080	U	ug/L	P324171	
		MCP	0.0021	I	ug/L	P324171	
		Carbamazepine**	0.0038		ug/L	P324171	
		Triclopyr**	0.0040	U	ug/L	P324171	
		Primidone**	0.0074	I	ug/L	P324171	
		Fluridone**	0.015		ug/L	P324171	

Sample Location: MCKAY CRK

Collection Date/Time: 04/27/2017 12:00

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894293	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P324230	
	EPA 300.0 Rev. 2.1	Chloride	1.7E+03		mg Cl/L	P324790	
		Sulfate	230		mg SO4/L	P324793	
	SM 2120 B	Color (true)	28		PCU	P324225	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P325144	
	SM 2540 C-97	TDS	3.15E+03		mg/L	P324879	
	SM 2540 D-97	TSS	3	I	mg/L	P324929	
	SM 4500 F-C-97	Fluoride	0.44		mg F/L	P325148	
1894296	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P324263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P324423	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P324466	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P324458	
	SM 5310 B-00	Organic Carbon	8.3		mg C/L	P324768	
1894299	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.24		mg P/L	P324237	
1894308	EPA 200.7 Rev. 4.4	Calcium	91.3		mg/L	P324521	
		Iron	120	U	ug/L	P324521	
		Magnesium	114		mg/L	P324521	
		Potassium	37.7		mg/L	P324521	
		Sodium	1.09E+03		mg/L	P324521	
	EPA 200.8 Rev. 5.4	Arsenic	3.03		ug/L	P324521	
		Cadmium	0.060	U	ug/L	P324521	
		Chromium	1.2	U	ug/L	P324521	
		Copper	0.80	I	ug/L	P324521	
		Lead	0.15	U	ug/L	P324521	
		Nickel	0.60	U	ug/L	P324521	
		Silver	0.030	U	ug/L	P324521	

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894308	EPA 200.8 Rev. 5.4	Zinc	5.6	I	ug/L	P324521	

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, magnesium, potassium, and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: MCKAY CRK-DUP

Collection Date/Time: 04/27/2017 12:10

Field ID: G5SW0126

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894294	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P324230	
	EPA 300.0 Rev. 2.1	Chloride	2.0E+03		mg Cl/L	P324790	
		Sulfate	270		mg SO4/L	P324793	
	SM 2120 B	Color (true)	28		PCU	P324225	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P325144	
	SM 2540 C-97	TDS	3.61E+03		mg/L	P324879	
	SM 2540 D-97	TSS	3	U	mg/L	P324929	
	SM 4500 F-C-97	Fluoride	0.46		mg F/L	P325148	
1894297	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P324263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P324423	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P324466	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P324458	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P324768	
1894300	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.24		mg P/L	P324237	
1894309	EPA 200.7 Rev. 4.4	Calcium	90.1		mg/L	P324521	
		Iron	120	U	ug/L	P324521	
		Magnesium	111		mg/L	P324521	
		Potassium	34.4		mg/L	P324521	
		Sodium	1.02E+03		mg/L	P324521	
	EPA 200.8 Rev. 5.4	Arsenic	3.27		ug/L	P324521	
		Cadmium	0.060	U	ug/L	P324521	
		Chromium	1.2	U	ug/L	P324521	
		Copper	0.60	U	ug/L	P324521	
		Lead	0.15	U	ug/L	P324521	
		Nickel	0.63	I	ug/L	P324521	
		Silver	0.030	U	ug/L	P324521	
		Zinc	6.9	I	ug/L	P324521	

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, magnesium, potassium, and sodium are unavailable because of high analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 04/27/2017 12:15

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894295	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P324230	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P324963	

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894295	EPA 300.0 Rev. 2.1	Sulfate	0.20	U	mg SO4/L	P324791	
	SM 2120 B	Color (true)	2.5	U	PCU	P324225	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P325144	
	SM 2540 C-97	TDS	15	U	mg/L	P324875	
	SM 2540 D-97	TSS	2	U	mg/L	P324924	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325148	
1894298	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P324263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P324342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324392	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P324350	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P324767	
1894301	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324237	
1894310	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P324493	
		Iron	30	U	ug/L	P324493	
		Magnesium	0.040	U	mg/L	P324493	
		Potassium	0.30	U	mg/L	P324493	
		Sodium	0.50	U	mg/L	P324493	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P324493	
		Cadmium	0.020	U	ug/L	P324493	
		Chromium	0.40	U	ug/L	P324493	
		Copper	0.20	U	ug/L	P324493	
		Lead	0.050	U	ug/L	P324493	
		Nickel	0.20	U	ug/L	P324493	
		Silver	0.010	U	ug/L	P324493	
		Zinc	1.0	U	ug/L	P324493	

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 potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P324230

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P324493

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324521

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30.0	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324493

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
Zinc	1.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324521

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
Zinc	1.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324790

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324791

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324793

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324963

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324263

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324342

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324423

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324392

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324466

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324350

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324458

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324237

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: P324163

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P324225

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325144

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

Reference Method: SM 2540 C-97
Batch ID: P324875

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P324879

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324924

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324929

Component	Result	Code	Units
TSS	3	U	

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P324767

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P324768

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

Reference Method: USGS O-2060-01
Batch ID: P324171

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: P324493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	108		P	85 - 115
Iron	102		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	102		P	85 - 115
Sodium	105		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	103		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	102		P	85 - 115
Sodium	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	97.8		P	85 - 115
Cadmium	107		P	85 - 115
Chromium	101		P	85 - 115
Copper	92.4		P	85 - 115
Lead	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Nickel	94.1		P	85 - 115
Silver	97.0		P	85 - 115
Zinc	96.3		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	100		P	85 - 115
Copper	99.0		P	85 - 115
Lead	102		P	85 - 115
Nickel	102		P	85 - 115
Silver	99.4		P	85 - 115
Zinc	100		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324790

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324791

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324793

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324963

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324263

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: P324342

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324423

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: P324392

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324466

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324350

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324458

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324237

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

Reference Method: EPA 8321B
Batch ID: P324163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	73.6		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P325144

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

Reference Method: SM 4500 F-C-97
Batch ID: P325148

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P324767

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

Reference Method: SM 5310 B-00
Batch ID: P324768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P324171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	69.0		P	40 - 140
Acetaminophen	43.4		P	40 - 140
Bentazon	47.0		P	40 - 140
Carbamazepine	114		P	40 - 140
Diuron	119		P	40 - 140
Fenuron	106		P	40 - 140
Fluridone	99.5		P	40 - 140
Imidacloprid	108		P	40 - 160
Linuron	106		P	40 - 140
MCPP	74.2		P	40 - 140
Primidone	99.7		P	40 - 140
Triclopyr	74.9		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893017	Calcium	109	106	P/P	80 - 120
1893017	Iron	107	104	P/P	80 - 120
1893017	Magnesium	113	105	P/P	80 - 120
1893017	Potassium	98.7	94.9	P/P	80 - 120
1893017	Sodium	104		P	80 - 120
1893888	Calcium	100		P	80 - 120
1893888	Iron	99.4		P	80 - 120
1893888	Magnesium	97.0		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895132	Iron	102	98.8	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324493

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893017	Arsenic	101	98.3	P/P	80 - 120
1893017	Cadmium	109	105	P/P	80 - 120
1893017	Chromium	105	102	P/P	80 - 120
1893017	Copper	94.8	92.3	P/P	80 - 120
1893017	Lead	103	101	P/P	80 - 120
1893017	Nickel	96.1	93.5	P/P	80 - 120
1893017	Silver	98.2	95.6	P/P	80 - 120
1893017	Zinc	98.8	96.8	P/P	80 - 120
1893888	Arsenic	104		P	80 - 120
1893888	Cadmium	100		P	80 - 120
1893888	Chromium	86.8		P	80 - 120
1893888	Copper	85.7		P	80 - 120
1893888	Lead	101		P	80 - 120
1893888	Nickel	90.7		P	80 - 120
1893888	Silver	96.0		P	80 - 120
1893888	Zinc	88.6		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895132	Arsenic	108	107	P/P	80 - 120
1895132	Cadmium	102	104	P/P	80 - 120
1895132	Chromium	88.1	88.5	P/P	80 - 120
1895132	Copper	93.0	91.3	P/P	80 - 120
1895132	Lead	106	106	P/P	80 - 120
1895132	Nickel	98.0	97.6	P/P	80 - 120
1895132	Silver	91.3	91.7	P/P	80 - 120
1895132	Zinc	90.3	91.1	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895455	Chloride	101		P	90 - 110
1895456	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894610	Sulfate	101		P	90 - 110
1894611	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895455	Sulfate	102		P	90 - 110
1895456	Sulfate	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P324963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890464	Chloride	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P324263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894223	Ammonia-N	107	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P324342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894396	Kjeldahl Nitrogen	99.1	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P324423

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1892511	Kjeldahl Nitrogen	97.1	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P324392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894251	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P324466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894217	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P324350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894395	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P324458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893726	Total-P	91.8	90.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P324237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894218	O-Phosphate-P	99.2	99.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
 Batch ID: P324163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893377	Sucralose	109	114	P/P	40 - 140

Reference Method: SM 4500 F-C-97
 Batch ID: P325148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894180	Fluoride	99.4	98.8	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P324767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894249	Organic Carbon	103		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P324768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896326	Organic Carbon	102	103	P/P	85 - 115

Reference Method: USGS O-2060-01
 Batch ID: P324171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893801	2,4-D	64.9	67.1	P/P	40 - 140
1893801	Acetaminophen	87.4	91.4	P/P	40 - 140
1893801	Bentazon	52.8	56.6	P/P	40 - 140
1893801	Carbamazepine	103	107	P/P	40 - 140
1893801	Diuron	88.9	98.4	P/P	40 - 140
1893801	Fenuron	81.5	83.8	P/P	40 - 140
1893801	Fluridone	81.5	86.4	P/P	40 - 140
1893801	Imidacloprid	183	198	F/F	40 - 160
1893801	Linuron	97.5	95.9	P/P	40 - 140
1893801	MCP	57.6	61.7	P/P	40 - 140
1893801	Primidone	103	107	P/P	40 - 140
1893801	Triclopyr	58.8	63.5	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P324230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894232	Turbidity	7.02	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893017	Calcium	1.88	Spike	P	0 - 20
1893017	Iron	3.65	Spike	P	0 - 20
1893017	Magnesium	4.94	Spike	P	0 - 20
1893017	Potassium	2.49	Spike	P	0 - 20
1893017	Sodium	2.02	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P324521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895132	Calcium	1.24	Spike	P	0 - 20
1895132	Iron	2.92	Spike	P	0 - 20
1895132	Magnesium	0.977	Spike	P	0 - 20
1895132	Potassium	3.15	Spike	P	0 - 20
1895132	Sodium	1.66	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893017	Arsenic	2.51	Spike	P	0 - 20
1893017	Cadmium	3.59	Spike	P	0 - 20
1893017	Chromium	2.82	Spike	P	0 - 20
1893017	Copper	2.55	Spike	P	0 - 20
1893017	Lead	1.56	Spike	P	0 - 20
1893017	Nickel	2.73	Spike	P	0 - 20
1893017	Silver	2.64	Spike	P	0 - 20
1893017	Zinc	2.11	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P324521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895132	Arsenic	0.533	Spike	P	0 - 20
1895132	Cadmium	1.46	Spike	P	0 - 20
1895132	Chromium	0.491	Spike	P	0 - 20
1895132	Copper	1.78	Spike	P	0 - 20
1895132	Lead	0.0408	Spike	P	0 - 20
1895132	Nickel	0.404	Spike	P	0 - 20
1895132	Silver	0.409	Spike	P	0 - 20
1895132	Zinc	0.847	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895455	Chloride	0.0934	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894610	Sulfate	0.157	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895455	Sulfate	8.56	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890464	Chloride	1.13	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894223	Ammonia-N	0.00687	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894396	Kjeldahl Nitrogen	0.495	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892511	Kjeldahl Nitrogen	2.91	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894251	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894217	NO2NO3-N	0.870	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894395	Total-P	1.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893726	Total-P	1.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894218	O-Phosphate-P	0.241	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P324163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893377	Sucralose	4.12	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P324225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894248	Color (true)	1.49	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894180	Total Alkalinity	0.132	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P324875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894135	TDS	0.990	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P324879

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895231	TDS	3.36	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894180	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P324767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894249	Organic Carbon	0.482	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P324768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896326	Organic Carbon	0.809	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P324171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1893801	2,4-D	3.17	Spike	P	0 - 30
1893801	Acetaminophen	4.09	Spike	P	0 - 30
1893801	Bentazon	6.47	Spike	P	0 - 30
1893801	Carbamazepine	3.95	Spike	P	0 - 30
1893801	Diuron	9.28	Spike	P	0 - 30
1893801	Fenuron	2.61	Spike	P	0 - 30
1893801	Fluridone	5.75	Spike	P	0 - 30
1893801	Imidacloprid	7.60	Spike	P	0 - 30
1893801	Linuron	1.56	Spike	P	0 - 30
1893801	MCP	6.98	Spike	P	0 - 30
1893801	Primidone	4.20	Spike	P	0 - 30
1893801	Triclopyr	7.72	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: 1894307
Field Sample ID: G5SW0126

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	113	P	40 - 150
USGS O-2060-01	2,4-D-d3	57.5	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	72.1	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	83.2	P	30 - 160
USGS O-2060-01	Diuron-d6	79.6	P	30 - 150
USGS O-2060-01	Primidone-d5	75.6	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A76065

Included Lab Sample IDs: 1894293, 1894294, 1894295

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76066

Included Lab Sample IDs: 1894293, 1894294, 1894295

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76069

Included Lab Sample IDs: 1894299, 1894300, 1894301

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.2	P/P	90 - 110
O-Phosphate-P	98.7	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76071

Included Lab Sample IDs: 1894296, 1894297, 1894298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A76074

Included Lab Sample IDs: 1894307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	119	106	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76117

Included Lab Sample IDs: 1894298

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76147

Included Lab Sample IDs: 1894296, 1894297

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76148

Included Lab Sample IDs: 1894295

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76148

Included Lab Sample IDs: 1894295

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76152

Included Lab Sample IDs: 1894298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76183

Included Lab Sample IDs: 1894298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76185

Included Lab Sample IDs: 1894296, 1894297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A76229

Included Lab Sample IDs: 1894308, 1894309, 1894310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	99.2	P/P	90 - 110
Arsenic	98.1	97.2	P/P	90 - 110
Arsenic	99.2	98.1	P/P	90 - 110
Cadmium	101	103	P/P	90 - 110
Cadmium	101	102	P/P	90 - 110
Cadmium	103	101	P/P	90 - 110
Chromium	101	101	P/P	90 - 110
Chromium	101	99.4	P/P	90 - 110
Chromium	99.4	102	P/P	90 - 110
Copper	101	94.6	P/P	90 - 110
Copper	94.3	92.3	P/P	90 - 110
Copper	94.6	94.3	P/P	90 - 110
Lead	102	99.9	P/P	90 - 110
Lead	99.8	100	P/P	90 - 110
Lead	99.9	99.8	P/P	90 - 110
Nickel	102	95.0	P/P	90 - 110
Nickel	94.6	93.7	P/P	90 - 110
Nickel	95.0	94.6	P/P	90 - 110
Silver	101	101	P/P	90 - 110
Silver	101	99.1	P/P	90 - 110
Silver	99.1	99.5	P/P	90 - 110
Zinc	102	97.0	P/P	90 - 110
Zinc	97.0	97.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A76229

Included Lab Sample IDs: 1894308, 1894309, 1894310

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

Reference Method: SM 5310 B-00

Run ID: A76230

Included Lab Sample IDs: 1894296, 1894297, 1894298

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.1	98.8	P/P	90 - 110
Organic Carbon	99.8	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76269

Included Lab Sample IDs: 1894295

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76346

Included Lab Sample IDs: 1894310

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	104	103	P/P	90 - 110
Iron	101	103	P/P	90 - 110
Magnesium	102	104	P/P	90 - 110
Potassium	102	104	P/P	90 - 110
Sodium	103	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76363

Included Lab Sample IDs: 1894293, 1894294, 1894295

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

Reference Method: SM 4500 F-C-97

Run ID: A76363

Included Lab Sample IDs: 1894293, 1894294, 1894295

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76366

Included Lab Sample IDs: 1894308, 1894309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	99.1	99.8	P/P	90 - 110
Iron	102	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
 Run ID: A76366
 Included Lab Sample IDs: 1894308, 1894309

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Magnesium	102	100	P/P	90 - 110
Potassium	103	101	P/P	90 - 110
Sodium	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A76401
 Included Lab Sample IDs: 1894296, 1894297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	96.0	P/P	90 - 110

Reference Method: USGS O-2060-01
 Run ID: A76477
 Included Lab Sample IDs: 1894307

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	85.6	87.6	P/P	50 - 150
Acetaminophen	102	103	P/P	60 - 150
Bentazon	80.8	78.4	P/P	50 - 150
Carbamazepine	90.0	92.0	P/P	60 - 150
Diuron	96.4	103	P/P	60 - 150
Fenuron	93.6	94.4	P/P	60 - 150
Fluridone	97.2	100	P/P	60 - 150
Imidacloprid	97.2	95.2	P/P	60 - 150
Linuron	85.2	84.4	P/P	60 - 150
MCP	88.0	86.4	P/P	50 - 150
Primidone	88.4	96.0	P/P	60 - 150
Triclopyr	89.6	86.4	P/P	50 - 150

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	
			LCS			SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					7.02	
EPA 200.7 Rev. 4.4	Calcium	108	109	106	100		1.88
	Calcium	102					1.24
	Iron	102	107	104	99.4		3.65
	Iron	103	102	98.8			2.92
	Magnesium	108	113	105	97.0		4.94
	Magnesium	103					0.977
	Potassium	102	98.7	94.9			2.49
	Potassium	102					3.15
	Sodium	105	104				2.02
	Sodium	105					1.66
EPA 200.8 Rev. 5.4	Arsenic	97.8	101	98.3	104		2.51

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	MS
			LCS	SMP			
EPA 200.8 Rev. 5.4	Arsenic	101	108	107			0.533
	Cadmium	107	109	105	100		3.59
	Cadmium	103	102	104			1.46
	Chromium	101	105	102	86.8		2.82
	Chromium	100	88.1	88.5			0.491
	Copper	92.4	94.8	92.3	85.7		2.55
	Copper	99.0	93.0	91.3			1.78
	Lead	101	101	103	101		1.56
	Lead	102	106	106			0.0408
	Nickel	94.1	96.1	93.5	90.7		2.73
	Nickel	102	98.0	97.6			0.404
	Silver	97.0	98.2	95.6	96.0		2.64
	Silver	99.4	91.3	91.7			0.409
	Zinc	96.3	98.8	96.8	88.6		2.11
	Zinc	100	90.3	91.1			0.847
EPA 300.0 Rev. 2.1	Chloride	104	101	101		0.0934	
	Chloride	97.8	96.7			1.13	
	Sulfate	101	101	101		0.157	
	Sulfate	100	102	102		8.56	
EPA 350.1 Rev. 2.0	Ammonia-N	104	107	107			0.0068
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.1	98.5			0.495
	Kjeldahl Nitrogen	103	97.1	101			2.91
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	102			0.491
	NO2NO3-N	102	102	103			0.870
EPA 365.1 Rev. 2.0	Total-P	98.0	105	107			1.41
	Total-P	98.0	91.8	90.5			1.37
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	99.2	99.5			0.241
EPA 8321B	Sucralose	73.6	109	114			4.12
SM 2120 B	Color (true)					1.49	
SM 2320 B-97	Total Alkalinity	104				0.132	
SM 2540 C-97	TDS					0.990	
	TDS					3.36	
SM 4500 F-C-97	Fluoride	98.7	99.4	98.8			0.483
SM 5310 B-00	Organic Carbon	99.2	103				0.482
	Organic Carbon	99.0	102	103			0.809
USGS O-2060-01	2,4-D	69.0	64.9	67.1			3.17
	Acetaminophen	43.4	87.4	91.4			4.09
	Bentazon	47.0	52.8	56.6			6.47
	Carbamazepine	114	103	107			3.95
	Diuron	119	88.9	98.4			9.28
	Fenuron	106	81.5	83.8			2.61
	Fluridone	99.5	81.5	86.4			5.75
	Imidacloprid	108	183	198			7.60
	Linuron	106	97.5	95.9			1.56
	MCPD	74.2	57.6	61.7			6.98
	Primidone	99.7	103	107			4.20
	Triclopyr	74.9	58.8	63.5			7.72

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1894293, 1894294, 1894295

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1894308, 1894309, 1894310
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1894308, 1894309, 1894310
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1894293, 1894294, 1894295
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1894293, 1894294, 1894295
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1894296, 1894297, 1894298
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1894296, 1894297, 1894298
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1894296, 1894297, 1894298
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1894296, 1894297, 1894298
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1894299, 1894300, 1894301
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1894307
SM 2120 B / E31780	True Color measured at 450 nm	1894293, 1894294, 1894295
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1894293, 1894294, 1894295
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1894293, 1894294, 1894295
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1894293, 1894294, 1894295
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1894293, 1894294, 1894295
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1894296, 1894297, 1894298
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1894307
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1894307

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	04/28/2017			04/28/2017 16:01	Sima Feizi	1894293, 1894294, 1894295
EPA 200.7 Rev. 4.4	04/28/2017	05/03/2017	Elliott D. Healy	05/11/2017	Martin Acosta	1894308, 1894309
	04/28/2017	05/03/2017	Robert K Palmer	05/10/2017	Martin Acosta	1894310
EPA 200.8 Rev. 5.4	04/28/2017	05/03/2017	Elliott D. Healy	05/05/2017	Betina Topolski	1894308, 1894309
	04/28/2017	05/03/2017	Robert K Palmer	05/05/2017	Betina Topolski	1894310
EPA 300.0 Rev. 2.1	04/28/2017			05/05/2017	Ping Hua	1894295
	04/28/2017			05/09/2017	Ping Hua	1894293, 1894294, 1894295
EPA 350.1 Rev. 2.0	04/28/2017			04/28/2017	Julie Michelle Frank	1894296, 1894297, 1894298
EPA 351.2 Rev. 2.0	04/28/2017	05/02/2017	Adrian Shelby	05/03/2017	Joseph Suarez	1894298
	04/28/2017	05/03/2017	Adrian Shelby	05/08/2017	Joseph Suarez	1894296, 1894297
EPA 353.2 Rev. 2.0	04/28/2017			05/02/2017	Beverly Y. Sanders	1894298
	04/28/2017			05/03/2017	Beverly Y. Sanders	1894296, 1894297
EPA 365.1 Rev. 2.0	04/28/2017	05/02/2017	Adrian Shelby	05/04/2017	Lipi Saha	1894298
	04/28/2017	05/03/2017	Vijayalakshmi Reddy	05/04/2017	Lipi Saha	1894296, 1894297
EPA 365.1 Rev. 2.0 dissolved	04/28/2017			04/28/2017 16:20	Anthony C. Onicha	1894299
	04/28/2017			04/28/2017 16:24	Anthony C. Onicha	1894300
	04/28/2017			04/28/2017 16:31	Anthony C. Onicha	1894301
EPA 8321B	04/28/2017	04/29/2017	Mohammad Ghaffari	04/29/2017	Mohammad Ghaffari	1894307
SM 2120 B	04/28/2017			04/28/2017 15:34	Julia Storbeck	1894293
	04/28/2017			04/28/2017 15:35	Julia Storbeck	1894294
	04/28/2017			04/28/2017 15:36	Julia Storbeck	1894295
SM 2320 B-97	04/28/2017			05/10/2017	Dale L. Simmons	1894293, 1894294, 1894295
SM 2540 C-97	04/28/2017			05/03/2017	Yijie Li	1894293, 1894294, 1894295
SM 2540 D-97	04/28/2017			05/03/2017	Yijie Li	1894293, 1894294, 1894295
SM 4500 F-C-97	04/28/2017			05/10/2017	Dale L. Simmons	1894293, 1894294, 1894295
SM 5310 B-00	04/28/2017			05/06/2017	Julie Michelle Frank	1894296, 1894297, 1894298
USGS O-2060-01	04/28/2017	05/03/2017	Hoor Shaik	05/15/2017	Juyoung Kim	1894307