

Chemical Analysis Report

NE-DIST-2017-05-16-01

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

Event Description: **UEC South**
Request ID: **RQ-2017-05-08-13**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 15-JUN-2017 10:30



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: Pellicer Creek @ Faver Dykes Boat Ramp

Collection Date/Time: 05/15/2017 10:00

Field ID: G5NE0564 05152017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899367	EPA 180.1 Rev. 2.0	Turbidity	8.4		NTU	P325376	
	SM 2320 B-97	Total Alkalinity	117		mg CaCO3/L	P325700	
	SM 2540 D-97	TSS	13	A	mg/L	P325682	
	SM 4500 F-C-97	Fluoride	0.73		mg F/L	P325703	RPD
1899368	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P325659	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P325537	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325486	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P325436	
	SM 5310 B-00	Organic Carbon	8.4		mg C/L	P326008	
1899369	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P325387	

Sample Location: Pellicer Creek @ US 1

Collection Date/Time: 05/15/2017 10:30

Field ID: G5NE0034 05152017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899403	EPA 8321B	Sucralose**	0.072		ug/L	P325291	
	USGS O-2060-01	2,4-D	8.8E-04	I	ug/L	P325285	
		Diuron	8.0E-04	U	ug/L	P325285	
		Fenuron	0.0040	U	ug/L	P325285	
		Imidacloprid	0.0018	I	ug/L	P325285	MS
		Bentazon	0.0010	I	ug/L	P325285	
		Linuron	0.0040	U	ug/L	P325285	
		Acetaminophen**	0.030	I	ug/L	P325285	
		MCP	8.0E-04	U	ug/L	P325285	
		Carbamazepine**	4.0E-04	U	ug/L	P325285	
		Triclopyr**	0.0040	U	ug/L	P325285	
		Primidone**	0.0040	U	ug/L	P325285	
		Fluridone**	4.0E-04	U	ug/L	P325285	

Sample Location: Cracker Branch @ CR 204

Collection Date/Time: 05/15/2017 10:40

Field ID: G5NE0079 05152017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899370	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P325376	
	EPA 300.0 Rev. 2.1	Chloride	530		mg Cl/L	P326709	
		Sulfate	100		mg SO4/L	P326712	
	SM 2120 B	Color (true)	26		PCU	P325372	
	SM 2320 B-97	Total Alkalinity	97		mg CaCO3/L	P325700	
	SM 2540 C-97	TDS	1.16E+03		mg/L	P325689	
	SM 2540 D-97	TSS	2	U	mg/L	P325678	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P325703	RPD
1899373	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P325659	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P325537	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P325486	

Field ID: G5NE0079 05152017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899373	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P325436	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P326023	
1899376	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P325387	
1899418	EPA 200.7 Rev. 4.4	Calcium	66.0		mg/L	P325692	
		Iron	250		ug/L	P325692	
		Magnesium	39.6		mg/L	P325692	
		Potassium	10.7		mg/L	P325692	
		Sodium	308		mg/L	P325692	
		Zinc	5.0	U	ug/L	P325692	
	EPA 200.8 Rev. 5.4	Arsenic	0.31		ug/L	P325692	
		Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.40	U	ug/L	P325692	
		Copper	0.61	I	ug/L	P325692	
		Lead	0.067	I	ug/L	P325692	
		Nickel	0.20	U	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

Ref. Method and Comment:

SM 2540 C-97: The TDS result is consistent with the conductivity measured in the laboratory, 2200 umhos/cm.

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

Sample Location: Cracker Branch 1.5 mi N of CR 204

Collection Date/Time: 05/15/2017 11:10

Field ID: G5NE0580 05152017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899371	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P325376	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P325902	
		Sulfate	2.2		mg SO4/L	P325899	
	SM 2120 B	Color (true)	38	A	PCU	P325372	
	SM 2320 B-97	Total Alkalinity	156		mg CaCO3/L	P325700	
	SM 2540 C-97	TDS	257	A	mg/L	P325689	
	SM 2540 D-97	TSS	3	IA	mg/L	P325678	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P325703	RPD
1899374	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P325656	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P325454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P325426	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P325433	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P325583	
1899377	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P325386	
1899419	EPA 200.7 Rev. 4.4	Calcium	61.3		mg/L	P325692	
		Iron	390		ug/L	P325692	
		Magnesium	3.94		mg/L	P325692	
		Potassium	0.89	I	mg/L	P325692	
		Sodium	23.2		mg/L	P325692	
		Zinc	5.0	U	ug/L	P325692	
	EPA 200.8 Rev. 5.4	Arsenic	0.50		ug/L	P325692	

Field ID: G5NE0580 05152017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899419	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.40	U	ug/L	P325692	
		Copper	0.20	U	ug/L	P325692	
		Lead	0.050	U	ug/L	P325692	
		Nickel	0.20	U	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

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: Equipment Blank

Collection Date/Time: 05/15/2017 10:50

Field ID: BLANK 05152017

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1899372	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P325376	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P325902	
		Sulfate	0.20	U	mg SO4/L	P325899	
	SM 2120 B	Color (true)	2.5	U	PCU	P325372	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P325700	
	SM 2540 C-97	TDS	15	U	mg/L	P325686	
	SM 2540 D-97	TSS	2	U	mg/L	P325675	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325703	RPD
1899375	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P325656	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P325454	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325426	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P325433	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P325583	
1899378	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P325386	
1899420	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P325692	
		Iron	30	U	ug/L	P325692	
		Magnesium	0.040	U	mg/L	P325692	
		Potassium	0.30	U	mg/L	P325692	
		Sodium	0.50	U	mg/L	P325692	
		Zinc	5.0	U	ug/L	P325692	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P325692	
		Cadmium	0.020	U	ug/L	P325692	
		Chromium	0.40	U	ug/L	P325692	
		Copper	1.74		ug/L	P325692	
		Lead	0.050	U	ug/L	P325692	
		Nickel	0.28	I	ug/L	P325692	
		Silver	0.010	U	ug/L	P325692	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The copper and nickel results were confirmed in the undigested sample on 05/30/2017

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325376

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325692

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: P325692

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: P325899

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326709

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326712

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325656

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325659

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325454

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325537

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325426

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325486

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325433

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325436

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325386

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325387

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

Reference Method: EPA 8321B
Batch ID: P325291

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P325372

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325700

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

Reference Method: SM 2540 C-97
Batch ID: P325686

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P325689

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325675

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325678

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325682

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
 Batch ID: P325703

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P325583

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

Reference Method: SM 5310 B-00
 Batch ID: P326008

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

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

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

Reference Method: USGS O-2060-01
 Batch ID: P325285

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
MCPD	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: P325692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	106		P	85 - 115
Magnesium	104		P	85 - 115
Potassium	100		P	85 - 115
Sodium	105		P	85 - 115
Zinc	101		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	98.6		P	85 - 115
Chromium	97.9		P	85 - 115
Copper	96.4		P	85 - 115
Lead	102		P	85 - 115
Nickel	98.4		P	85 - 115
Silver	100		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	90.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326709

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	93.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	91.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325454

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325537

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325426

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325486

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: P325433

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325436

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325386

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325387

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

Reference Method: EPA 8321B
Batch ID: P325291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	78.3		P	40 - 140

Reference Method: SM 2320 B-97
Batch ID: P325700

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P325703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P325583

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326008

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.0		P	85 - 115

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

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

Reference Method: USGS O-2060-01
Batch ID: P325285

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	88.4		P	40 - 140
Acetaminophen	86.2		P	40 - 140
Bentazon	70.6		P	40 - 140
Carbamazepine	107		P	40 - 140
Diuron	108		P	40 - 140
Fenuron	93.2		P	40 - 140
Fluridone	103		P	40 - 140
Imidacloprid	92.0		P	40 - 160
Linuron	100		P	40 - 140
MCPP	91.4		P	40 - 140
Primidone	98.0		P	40 - 140
Triclopyr	94.8		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899419	Calcium	102		P	80 - 120
1899419	Iron	104		P	80 - 120
1899419	Magnesium	103		P	80 - 120
1899419	Potassium	101		P	80 - 120
1899419	Sodium	103		P	80 - 120
1899419	Zinc	99.2		P	80 - 120
1899723	Calcium	105		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899723	Iron	106	106	P/P	80 - 120
1899723	Magnesium	105		P	80 - 120
1899723	Potassium	108	107	P/P	80 - 120
1899723	Sodium	106		P	80 - 120
1899723	Zinc	98.4	99.6	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899419	Arsenic	102		P	80 - 120
1899419	Cadmium	101		P	80 - 120
1899419	Chromium	97.5		P	80 - 120
1899419	Copper	93.9		P	80 - 120
1899419	Lead	102		P	80 - 120
1899419	Nickel	96.2		P	80 - 120
1899419	Silver	100		P	80 - 120
1899723	Arsenic	102	102	P/P	80 - 120
1899723	Cadmium	101	99.9	P/P	80 - 120
1899723	Chromium	98.1	97.9	P/P	80 - 120
1899723	Copper	93.7	94.9	P/P	80 - 120
1899723	Lead	102	101	P/P	80 - 120
1899723	Nickel	96.8	96.2	P/P	80 - 120
1899723	Silver	101	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899437	Sulfate	95.2		P	90 - 110
1899448	Sulfate	96.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899437	Chloride	101		P	90 - 110
1899448	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326709

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899321	Chloride	95.6		P	90 - 110
1901124	Chloride	94.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899321	Sulfate	92.6		P	90 - 110
1901124	Sulfate	91.5		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899322	Ammonia-N	98.9	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899416	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325454

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899374	Kjeldahl Nitrogen	100	93.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899409	Kjeldahl Nitrogen	94.4	93.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898486	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899368	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899438	Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899350	Total-P	97.2	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899345	O-Phosphate-P	98.5	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P325387

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899455	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P325291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898904	Sucralose	59.7	55.5	P/P	40 - 140

Reference Method: SM 4500 F-C-97
Batch ID: P325703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899011	Fluoride	96.5	102	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P325583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1899365	Organic Carbon	92.8	93.6	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P326008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898609	Organic Carbon	92.6	92.1	P/P	85 - 115

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

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

Reference Method: USGS O-2060-01
Batch ID: P325285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1898769	2,4-D	81.2	80.8	P/P	40 - 140
1898769	Acetaminophen	97.0	95.4	P/P	40 - 140
1898769	Bentazon	45.6	45.4	P/P	40 - 140
1898769	Carbamazepine	110	122	P/P	40 - 140
1898769	Diuron	111	97.2	P/P	40 - 140
1898769	Fenuron	85.0	88.2	P/P	40 - 140
1898769	Fluridone	46.0	45.0	P/P	40 - 140
1898769	Imidacloprid	156	161	P/F	40 - 160
1898769	Linuron	97.6	102	P/P	40 - 140
1898769	MCP	82.0	75.4	P/P	40 - 140
1898769	Primidone	102	112	P/P	40 - 140
1898769	Triclopyr	83.2	82.4	P/P	40 - 140

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P325376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899321	Turbidity	0.327	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P325692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899723	Calcium	0.676	Spike	P	0 - 20
1899723	Iron	0.200	Spike	P	0 - 20
1899723	Magnesium	0.142	Spike	P	0 - 20
1899723	Potassium	0.424	Spike	P	0 - 20
1899723	Sodium	0.146	Spike	P	0 - 20
1899723	Zinc	1.15	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P325692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899723	Arsenic	0.568	Spike	P	0 - 20
1899723	Cadmium	1.07	Spike	P	0 - 20
1899723	Chromium	0.223	Spike	P	0 - 20
1899723	Copper	1.24	Spike	P	0 - 20
1899723	Lead	0.975	Spike	P	0 - 20
1899723	Nickel	0.641	Spike	P	0 - 20
1899723	Silver	0.252	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899437	Sulfate	0.0223	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P325902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899437	Chloride	0.337	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326709

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899321	Chloride	2.12	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P326712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899321	Sulfate	2.05	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899322	Ammonia-N	2.17	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899416	Ammonia-N	0.884	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325454

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899374	Kjeldahl Nitrogen	5.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899409	Kjeldahl Nitrogen	1.18	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898486	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899368	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P325433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899438	Total-P	2.73	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P325436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899350	Total-P	0.156	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P325386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899345	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P325387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899455	O-Phosphate-P	0.0976	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P325291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898904	Sucralose	6.94	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P325372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899371	Color (true)	0.161	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P325700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899011	Total Alkalinity	0.127	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97

Batch ID: P325686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898803	TDS	5.49	Sample	P	0 - 10

Reference Method: SM 2540 C-97

Batch ID: P325689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899371	TDS	4.67	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
 Batch ID: P325682

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899367	TSS	3.08	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P325703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899011	Fluoride	3.92	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P325583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1899365	Organic Carbon	0.616	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P326008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898609	Organic Carbon	0.394	Spike	P	0 - 20

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

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

Reference Method: USGS O-2060-01
 Batch ID: P325285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898769	2,4-D	0.480	Spike	P	0 - 30
1898769	Acetaminophen	1.66	Spike	P	0 - 30
1898769	Bentazon	0.440	Spike	P	0 - 30
1898769	Carbamazepine	10.4	Spike	P	0 - 30
1898769	Diuron	12.9	Spike	P	0 - 30
1898769	Fenuron	3.70	Spike	P	0 - 30
1898769	Fluridone	2.20	Spike	P	0 - 30
1898769	Imidacloprid	2.81	Spike	P	0 - 30
1898769	Linuron	4.21	Spike	P	0 - 30
1898769	MCCP	8.39	Spike	P	0 - 30
1898769	Primidone	9.74	Spike	P	0 - 30
1898769	Triclopyr	0.966	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: 1899403
Field Sample ID: G5NE0034 05152017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	97.5	P	40 - 150
USGS O-2060-01	2,4-D-d3	79.5	P	30 - 150
USGS O-2060-01	Acetaminophen-d4	78.3	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	84.9	P	30 - 160
USGS O-2060-01	Diuron-d6	77.9	P	30 - 150
USGS O-2060-01	Primidone-d5	80.7	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A76461
Included Lab Sample IDs: 1899370, 1899371, 1899372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.3	99.8	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76462
Included Lab Sample IDs: 1899367, 1899370, 1899371, 1899372

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76466
Included Lab Sample IDs: 1899369, 1899376, 1899377, 1899378

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76480
Included Lab Sample IDs: 1899374, 1899375

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76509
Included Lab Sample IDs: 1899368, 1899373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76510
Included Lab Sample IDs: 1899373, 1899374

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A76510
 Included Lab Sample IDs: 1899373, 1899374

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

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A76516
 Included Lab Sample IDs: 1899368

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

Reference Method: EPA 365.1 Rev. 2.0
 Run ID: A76542
 Included Lab Sample IDs: 1899375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	98.8	P/P	90 - 110

Reference Method: EPA 8321B
 Run ID: A76559
 Included Lab Sample IDs: 1899403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	80.8	P/P	60 - 150

Reference Method: SM 5310 B-00
 Run ID: A76560
 Included Lab Sample IDs: 1899374, 1899375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.4	P/P	90 - 110

Reference Method: USGS O-2060-01
 Run ID: A76569
 Included Lab Sample IDs: 1899403

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	88.0	91.6	P/P	50 - 150
Acetaminophen	74.0	101	P/P	60 - 150
Bentazon	90.8	98.0	P/P	50 - 150
Carbamazepine	80.4	92.8	P/P	60 - 150
Diuron	80.0	94.0	P/P	60 - 150
Fenuron	78.0	100	P/P	60 - 150
Fluridone	81.6	95.2	P/P	60 - 150
Imidacloprid	71.2	88.0	P/P	60 - 150
Linuron	78.8	76.0	P/P	60 - 150
MCPP	86.0	84.4	P/P	50 - 150
Primidone	82.0	89.6	P/P	60 - 150
Triclopyr	88.0	92.8	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76593

Included Lab Sample IDs: 1899374, 1899375

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.5	96.0	P/P	90 - 110
Kjeldahl Nitrogen	95.3	91.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76600

Included Lab Sample IDs: 1899368, 1899373, 1899374, 1899375

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76606

Included Lab Sample IDs: 1899368, 1899373

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	97.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76617

Included Lab Sample IDs: 1899367, 1899370, 1899371, 1899372

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: A76617

Included Lab Sample IDs: 1899367, 1899370, 1899371, 1899372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110
Fluoride	99.0	98.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76672

Included Lab Sample IDs: 1899371, 1899372

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	103	P/P	90 - 110
Sulfate	94.8	99.0	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A76756

Included Lab Sample IDs: 1899418, 1899419, 1899420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	99.0	P/P	90 - 110
Arsenic	99.0	100	P/P	90 - 110
Cadmium	96.3	96.3	P/P	90 - 110
Cadmium	96.5	96.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A76756

Included Lab Sample IDs: 1899418, 1899419, 1899420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	97.5	99.1	P/P	90 - 110
Chromium	99.1	99.0	P/P	90 - 110
Copper	96.9	98.0	P/P	90 - 110
Copper	98.4	96.9	P/P	90 - 110
Lead	99.5	100	P/P	90 - 110
Lead	99.9	99.5	P/P	90 - 110
Nickel	96.3	98.0	P/P	90 - 110
Nickel	98.9	96.3	P/P	90 - 110
Silver	103	103	P/P	90 - 110
Silver	104	103	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76758

Included Lab Sample IDs: 1899368

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	92.3	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A76775

Included Lab Sample IDs: 1899373

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76847

Included Lab Sample IDs: 1899418, 1899419, 1899420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	95 - 105
Calcium	101	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Iron	103	102	P/P	95 - 105
Magnesium	102	103	P/P	90 - 110
Magnesium	103	102	P/P	95 - 105
Potassium	101	102	P/P	90 - 110
Potassium	102	101	P/P	95 - 105
Sodium	102	103	P/P	90 - 110
Sodium	102	102	P/P	95 - 105
Zinc	101	102	P/P	95 - 105
Zinc	102	101	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A76900

Included Lab Sample IDs: 1899418

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	103	P/P	90 - 110
Zinc	102	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77052

Included Lab Sample IDs: 1899370

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	94.7	97.2	P/P	90 - 110
Sulfate	93.9	102	P/P	90 - 110

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

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.327	
EPA 200.7 Rev. 4.4	Calcium	104	102	105				0.676
	Iron	106	104	106	106			0.200
	Magnesium	104	103	105				0.142
	Potassium	100	101	108	107			0.424
	Sodium	105	103	106				0.146
	Zinc	101	99.2	98.4	99.6			1.15
EPA 200.8 Rev. 5.4	Arsenic	101	102	102	102			0.568
	Cadmium	98.6	101	101	99.9			1.07
	Chromium	97.9	97.5	98.1	97.9			0.223
	Copper	96.4	93.9	93.7	94.9			1.24
	Lead	102	102	102	101			0.975
	Nickel	98.4	96.2	96.8	96.2			0.641
	Silver	100	100	101	101			0.252
EPA 300.0 Rev. 2.1	Chloride	99.5	101	97.6			0.337	
	Chloride	93.1	95.6	94.3			2.12	
	Sulfate	90.9	95.2	96.0			0.0223	
	Sulfate	91.0	92.6	91.5			2.05	
EPA 350.1 Rev. 2.0	Ammonia-N	95.0	98.9	101				2.17
	Ammonia-N	98.7	101	102				0.884
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.0	100	93.3				5.53
	Kjeldahl Nitrogen	101	94.4	93.1				1.18
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101				0.0
	NO2NO3-N	100	100	101				0.496
EPA 365.1 Rev. 2.0	Total-P	99.3	101	104				2.73
	Total-P	103	97.2	97.4				0.156
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.5	98.5				0.0
	O-Phosphate-P	104	102	102				0.0976
EPA 8321B	Sucralose	78.3	59.7	55.5				6.94
SM 2120 B	Color (true)						0.161	
SM 2320 B-97	Total Alkalinity	103					0.127	
SM 2540 C-97	TDS						5.49	
	TDS						4.67	
SM 2540 D-97	TSS						3.08	
SM 4500 F-C-97	Fluoride	97.1	96.5	102				3.92
SM 5310 B-00	Organic Carbon	94.0	92.8	93.6				0.616
	Organic Carbon	95.0	92.6	92.1				0.394
	Organic Carbon	90.6	89.4	95.9				5.81

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
USGS O-2060-01	2,4-D	88.4	81.2	80.8			0.480
	Acetaminophen	86.2	97.0	95.4			1.66
	Bentazon	70.6	45.6	45.4			0.440
	Carbamazepine	107	110	122			10.4
	Diuron	108	111	97.2			12.9
	Fenuron	93.2	85.0	88.2			3.70
	Fluridone	103	46.0	45.0			2.20
	Imidacloprid	92.0	156	161			2.81
	Linuron	100	97.6	102			4.21
	MCP	91.4	82.0	75.4			8.39
	Primidone	98.0	102	112			9.74
	Triclopyr	94.8	83.2	82.4			0.966

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1899367, 1899370, 1899371, 1899372
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1899418, 1899419, 1899420
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1899418, 1899419, 1899420
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1899370, 1899371, 1899372
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1899370, 1899371, 1899372
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1899368, 1899373, 1899374, 1899375
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1899368, 1899373, 1899374, 1899375
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1899368, 1899373, 1899374, 1899375
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1899368, 1899373, 1899374, 1899375
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1899369, 1899376, 1899377, 1899378
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1899403
SM 2120 B / E31780	True Color measured at 450 nm	1899370, 1899371, 1899372
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1899367, 1899370, 1899371, 1899372
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1899370, 1899371, 1899372
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1899367, 1899370, 1899371, 1899372
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1899367, 1899370, 1899371, 1899372
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1899368, 1899373, 1899374, 1899375
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1899403
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1899403

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	05/16/2017			05/16/2017 15:00	Sima Feizi	1899367, 1899370, 1899371, 1899372
EPA 200.7 Rev. 4.4	05/16/2017	05/23/2017	Elliott D. Healy	06/02/2017	Betina Topolski	1899418, 1899419, 1899420
	05/16/2017	05/23/2017	Elliott D. Healy	06/06/2017	Betina Topolski	1899418
EPA 200.8 Rev. 5.4	05/16/2017	05/23/2017	Elliott D. Healy	05/30/2017	Robert K Palmer	1899418, 1899419, 1899420
EPA 300.0 Rev. 2.1	05/16/2017			05/26/2017	Ping Hua	1899371, 1899372
	05/16/2017			06/09/2017	Julia Storbeck	1899370
EPA 350.1 Rev. 2.0	05/16/2017			05/22/2017	Julia Storbeck	1899368, 1899373, 1899374, 1899375
EPA 351.2 Rev. 2.0	05/16/2017	05/18/2017	Adrian Shelby	05/22/2017	Joseph Suarez	1899374, 1899375
	05/16/2017	05/19/2017	Adrian Shelby	05/23/2017	Joseph Suarez	1899368, 1899373
EPA 353.2 Rev. 2.0	05/16/2017			05/17/2017	Beverly Y. Sanders	1899374, 1899375
	05/16/2017			05/18/2017	Beverly Y. Sanders	1899368, 1899373
EPA 365.1 Rev. 2.0	05/16/2017	05/17/2017	Vijayalakshmi Reddy	05/18/2017	Lipi Saha	1899368, 1899373, 1899374, 1899375
EPA 365.1 Rev. 2.0 dissolved	05/16/2017			05/16/2017 15:51	Anthony C. Onicha	1899369
	05/16/2017			05/16/2017 15:52	Anthony C. Onicha	1899376, 1899377
	05/16/2017			05/16/2017 15:55	Anthony C. Onicha	1899378
EPA 8321B	05/16/2017	05/18/2017	Mohammad Ghaffari	05/18/2017	Mohammad Ghaffari	1899403
SM 2120 B	05/16/2017			05/16/2017 14:42	Blanca Fach	1899370
	05/16/2017			05/16/2017 14:44	Blanca Fach	1899371, 1899372
SM 2320 B-97	05/16/2017			05/23/2017	Dale L. Simmons	1899367, 1899370, 1899371, 1899372
SM 2540 C-97	05/16/2017			05/17/2017	Yijie Li	1899370, 1899371, 1899372
SM 2540 D-97	05/16/2017			05/17/2017	Yijie Li	1899367, 1899370, 1899371, 1899372
SM 4500 F-C-97	05/16/2017			05/23/2017	Dale L. Simmons	1899367, 1899370, 1899371, 1899372
SM 5310 B-00	05/16/2017			05/19/2017	Christopher Armour	1899374
	05/16/2017			05/20/2017	Christopher Armour	1899375
	05/16/2017			05/30/2017	Julie Michelle Frank	1899368, 1899373
USGS O-2060-01	05/16/2017	05/17/2017	Hoor Shaik	05/21/2017	Juyoung Kim	1899403