

Chemical Analysis Report

NE-DIST-2018-08-16-01

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

Event Description: **LSJR West2**
Request ID: **RQ-2018-08-13-21**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 06-SEP-2018 11:43

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored background.

Case Narrative

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

Results for the following analytical groups are included in this report: Metals, Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: MCCOY CR AT MYRTLE AVE

Collection Date/Time: 08/15/2018 08:40

Field ID: 20030693

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017617	EPA 8321B	2,4-D	0.44		ug/L	P350331	
		Bentazon	0.024		ug/L	P350331	
		MCP	0.0066	IJ	ug/L	P350331	RPD
		Triclopyr**	0.0040	UJ	ug/L	P350331	RPD
		Imidacloprid	0.061		ug/L	P350331	
		Diuron	0.053		ug/L	P350331	
		Pyraclostrobin**	0.0020	U	ug/L	P350331	
		Primidone**	0.0040	U	ug/L	P350331	
		Linuron	0.0040	U	ug/L	P350331	
		Acetaminophen**	0.0095	I	ug/L	P350331	
		Fenuron	0.016	U	ug/L	P350331	
		Imazapyr**	0.24		ug/L	P350331	
		Carbamazepine**	8.0E-04	U	ug/L	P350331	
		Fluridone**	0.017		ug/L	P350331	
		Hydrocodone**	8.0E-04	U	ug/L	P350331	
		Naproxen**	0.0080	U	ug/L	P350331	
		Ibuprofen**	0.020	U	ug/L	P350331	
		Sucralose**	0.14		ug/L	P350234	

Ref. Method and Comment:

EPA 8321B: Insufficient sample to perform matrix spikes. Refer to the narrative for an explanation of QC Codes.

Sample Location: MCGIRTS CREEK AT OLD PLANK ROAD

Collection Date/Time: 08/15/2018 09:15

Field ID: 20030346

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017578	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P350288	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P350643	
		Sulfate	7.0		mg SO4/L	P350645	
		Color (true)	270		PCU	P350295	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P350424	
	SM 2540 C-97	TDS	94		mg/L	P350586	
	SM 2540 D-97	TSS	4	I	mg/L	P350576	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P350427	
2017583	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P350626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P350279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P350525	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P350508	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P350404	
2017588	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P350264	
2017618	EPA 200.7 Rev. 4.4	Calcium	11.6		mg/L	P350432	
		Iron	1.89E+03		ug/L	P350432	
		Magnesium	1.27		mg/L	P350432	
		Potassium	1.1	I	mg/L	P350432	
		Sodium	8.3		mg/L	P350432	
		Zinc	10	I	ug/L	P350432	
	EPA 200.8 Rev. 5.4	Arsenic	0.92		ug/L	P350432	
		Cadmium	0.020	U	ug/L	P350432	
		Chromium	0.79	I	ug/L	P350432	
		Copper	0.37	I	ug/L	P350432	
		Lead	4.83		ug/L	P350432	
		Nickel	0.73	I	ug/L	P350432	
		Silver	0.010	U	ug/L	P350432	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 08/25/2018.

Sample Location: MCGRITS CREEK AT HELSEMA RD

Collection Date/Time: 08/15/2018 09:35

Field ID: 20030877

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017579	EPA 180.1 Rev. 2.0	Turbidity	16	A	NTU	P350289	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P350643	
		Sulfate	6.9		mg SO4/L	P350645	
		Color (true)	190		PCU	P350299	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P350424	
	SM 2540 C-97	TDS	105		mg/L	P350586	
	SM 2540 D-97	TSS	6	I	mg/L	P350576	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P350427	
2017584	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P350626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P350279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P350525	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P350509	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P350404	
2017589	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P350264	
2017619	EPA 200.7 Rev. 4.4	Calcium	11.2		mg/L	P350432	
		Iron	2.64E+03		ug/L	P350432	
		Magnesium	1.19		mg/L	P350432	
		Potassium	0.84	I	mg/L	P350432	
		Sodium	6.8		mg/L	P350432	
		Zinc	5.6	I	ug/L	P350432	
	EPA 200.8 Rev. 5.4	Arsenic	1.11		ug/L	P350432	
		Cadmium	0.020	U	ug/L	P350432	
		Chromium	0.86	I	ug/L	P350432	
		Copper	0.30	I	ug/L	P350432	
		Lead	7.40		ug/L	P350432	
		Nickel	0.79	I	ug/L	P350432	
		Silver	0.010	U	ug/L	P350432	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 08/25/2018.

Sample Location: YELLOW WATER CR AT BICENTENNIAL

Collection Date/Time: 08/15/2018 10:10

Field ID: G2NE1153

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017580	EPA 180.1 Rev. 2.0	Turbidity	7.9		NTU	P350289	
	EPA 300.0 Rev. 2.1	Chloride	8.9		mg Cl/L	P350643	
		Sulfate	0.86		mg SO4/L	P350645	
	SM 2120 B	Color (true)	510		PCU	P350295	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P350424	
	SM 2540 C-97	TDS	99		mg/L	P350586	
	SM 2540 D-97	TSS	10		mg/L	P350576	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P350427	
2017585	EPA 350.1 Rev. 2.0	Ammonia-N	0.069		mg N/L	P350626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P350279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.050		mg N/L	P350525	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P350509	
	SM 5310 B-00	Organic Carbon	32		mg C/L	P350404	
2017590	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P350264	
2017620	EPA 200.7 Rev. 4.4	Calcium	7.77		mg/L	P350432	
		Iron	3.12E+03		ug/L	P350432	
		Magnesium	1.53		mg/L	P350432	
		Potassium	0.32	I	mg/L	P350432	
		Sodium	5.3		mg/L	P350432	
	EPA 200.8 Rev. 5.4	Zinc	11	I	ug/L	P350432	
		Arsenic	0.81		ug/L	P350432	
		Cadmium	0.020	U	ug/L	P350432	
		Chromium	1.3	I	ug/L	P350432	
		Copper	1.66		ug/L	P350432	
		Lead	1.98		ug/L	P350432	
		Nickel	1.20		ug/L	P350432	
		Silver	0.010	U	ug/L	P350432	

Ref. Method and Comment:
 EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 08/25/2018.

Sample Location: YELLOW WATER CR AT SR 228

Collection Date/Time: 08/15/2018 10:35

Field ID: 20030549

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017581	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P350289	
	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P350643	
		Sulfate	1.5		mg SO4/L	P350645	
		Color (true)	450		PCU	P350295	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P350424	
	SM 2540 C-97	TDS	98		mg/L	P350586	
	SM 2540 D-97	TSS	9	I	mg/L	P350576	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P350427	
2017586	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P350626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P350279	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P350526	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P350509	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P350404	
2017591	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P350264	
2017621	EPA 200.7 Rev. 4.4	Calcium	7.36		mg/L	P350432	
		Iron	2.76E+03		ug/L	P350432	
		Magnesium	1.47		mg/L	P350432	
		Potassium	0.35	I	mg/L	P350432	
		Sodium	5.3		mg/L	P350432	
		Zinc	10	I	ug/L	P350432	
	EPA 200.8 Rev. 5.4	Arsenic	0.78		ug/L	P350432	
		Cadmium	0.020	U	ug/L	P350432	
		Chromium	1.2	I	ug/L	P350432	
		Copper	1.42		ug/L	P350432	
		Lead	2.17		ug/L	P350432	
		Nickel	1.09		ug/L	P350432	
		Silver	0.010	U	ug/L	P350432	

Ref. Method and Comment:
EPA 200.8 Rev. 5.4: The lead result was confirmed in the undigested sample on 08/25/2018.

Sample Location: YELLOW WATER CREEK AT STATE FOREST Collection Date/Time: 08/15/2018 11:05

Field ID: G2NE1163

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017582	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P350289	
	EPA 300.0 Rev. 2.1	Chloride	7.6		mg Cl/L	P350643	
		Sulfate	5.2		mg SO ₄ /L	P350645	
		Color (true)	250		PCU	P350295	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO ₃ /L	P350424	
	SM 2540 C-97	TDS	85		mg/L	P350587	
	SM 2540 D-97	TSS	9	I	mg/L	P350577	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P350427	
2017587	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P350628	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P350279	
	EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	0.080		mg N/L	P350526	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P350509	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P350548	
2017592	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P350264	
2017622	EPA 200.7 Rev. 4.4	Calcium	11.9		mg/L	P350432	
		Iron	1.42E+03		ug/L	P350432	
		Magnesium	1.58		mg/L	P350432	
		Potassium	0.55	I	mg/L	P350432	
		Sodium	4.9		mg/L	P350432	
		Zinc	6.9	I	ug/L	P350432	
	EPA 200.8 Rev. 5.4	Arsenic	0.87		ug/L	P350432	
		Cadmium	0.026	I	ug/L	P350432	
		Chromium	0.89	I	ug/L	P350432	
		Copper	1.18		ug/L	P350432	
		Lead	1.23		ug/L	P350432	
		Nickel	0.72	I	ug/L	P350432	
		Silver	0.010	U	ug/L	P350432	

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 lead result was confirmed in the undigested sample on 08/25/2018.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350288

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350289

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350432

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: P350432

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: P350643

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350645

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350626

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350628

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350279

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350525

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350526

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350509

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350264

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

Reference Method: EPA 8321B
Batch ID: P350234

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B
Batch ID: P350331

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	8.0E-04	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P350331

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	U	ug/L
Ibuprofen	0.020	U	ug/L
Imazapyr	0.0040	U	ug/L
Imidacloprid	0.0020	U	ug/L
Linuron	0.0040	U	ug/L
MCPP	0.0020	U	ug/L
Naproxen	0.0080	U	ug/L
Primidone	0.0040	U	ug/L
Pyraclostrobin	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P350295

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P350299

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P350424

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

Reference Method: SM 2540 C-97
Batch ID: P350586

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P350587

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P350576

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P350577

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350427

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350404

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

Reference Method: SM 5310 B-00
Batch ID: P350548

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350432

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	102		P	85 - 115
Iron	103		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	100		P	85 - 115
Sodium	98.0		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350432

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	105		P	85 - 115
Chromium	102		P	85 - 115
Copper	99.0		P	85 - 115
Lead	102		P	85 - 115
Nickel	101		P	85 - 115
Silver	101		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350643

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350645

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350626

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350628

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350279

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350525

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: P350526

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350264

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

Reference Method: EPA 8321B
Batch ID: P350234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	107		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P350331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	101	75.1	P/P	40 - 150
Acetaminophen	131	113	P/P	30 - 150
Bentazon	110	99.5	P/P	30 - 150
Carbamazepine	92.3	90.0	P/P	40 - 150
Diuron	91.6	95.4	P/P	40 - 150
Fenuron	117	107	P/P	40 - 150
Fluridone	79.5	76.8	P/P	40 - 150
Hydrocodone	105	101	P/P	40 - 150
Ibuprofen	88.3	81.8	P/P	40 - 150
Imazapyr	102	98.2	P/P	40 - 150
Imidacloprid	113	106	P/P	40 - 160
Linuron	76.1	74.7	P/P	40 - 150
MCPP	109	72.1	P/P	40 - 150
Naproxen	93.1	70.1	P/P	40 - 150
Primidone	109	108	P/P	40 - 150
Pyraclostrobin	78.9	74.0	P/P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P350331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Triclopyr	100	64.7	P/P	40 - 150

Reference Method: SM 2120 B
Batch ID: P350295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.1		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P350299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350424

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P350427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.3		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P350548

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017739	Calcium	105		P	80 - 120
2017739	Iron	104		P	80 - 120
2017739	Magnesium	101		P	80 - 120
2017739	Potassium	99.4		P	80 - 120
2017739	Sodium	99.1		P	80 - 120
2017739	Zinc	105		P	80 - 120
2017915	Calcium	104		P	80 - 120
2017915	Iron	103	104	P/P	80 - 120
2017915	Magnesium	104	107	P/P	80 - 120
2017915	Potassium	101	103	P/P	80 - 120
2017915	Sodium	97.3		P	80 - 120
2017915	Zinc	111	108	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017739	Arsenic	106		P	80 - 120
2017739	Cadmium	109		P	80 - 120
2017739	Chromium	103		P	80 - 120
2017739	Copper	101		P	80 - 120
2017739	Lead	105		P	80 - 120
2017739	Nickel	102		P	80 - 120
2017739	Silver	102		P	80 - 120
2017915	Arsenic	98.5	107	P/P	80 - 120
2017915	Cadmium	101	108	P/P	80 - 120
2017915	Chromium	96.5	103	P/P	80 - 120
2017915	Copper	93.2	101	P/P	80 - 120
2017915	Lead	98.1	106	P/P	80 - 120
2017915	Nickel	94.2	103	P/P	80 - 120
2017915	Silver	97.6	102	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350643

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017552	Chloride	93.0		P	90 - 110
2017638	Chloride	94.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017552	Sulfate	95.7		P	90 - 110
2017638	Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017519	Ammonia-N	99.5	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017587	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350279

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017584	Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017553	NO2NO3-N	98.1	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017695	NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017519	Total-P	96.9	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017695	Total-P	93.6	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017700	O-Phosphate-P	96.0	97.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P350234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017129	Sucralose	109	105	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P350427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017691	Fluoride	99.2	97.9	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P350404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017521	Organic Carbon	96.0	97.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P350548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017596	Organic Carbon	108		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017380	Turbidity	1.27	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017579	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017915	Calcium	0.0335	Spike	P	0 - 20
2017915	Iron	1.09	Spike	P	0 - 20
2017915	Magnesium	1.44	Spike	P	0 - 20
2017915	Potassium	1.26	Spike	P	0 - 20
2017915	Sodium	0.994	Spike	P	0 - 20
2017915	Zinc	2.21	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017915	Arsenic	7.68	Spike	P	0 - 20
2017915	Cadmium	6.38	Spike	P	0 - 20
2017915	Chromium	6.87	Spike	P	0 - 20
2017915	Copper	7.64	Spike	P	0 - 20
2017915	Lead	7.46	Spike	P	0 - 20
2017915	Nickel	8.72	Spike	P	0 - 20
2017915	Silver	4.46	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350643

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017552	Chloride	1.91	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017552	Sulfate	1.47	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017519	Ammonia-N	0.551	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017587	Ammonia-N	1.13	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350279

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017584	Kjeldahl Nitrogen	0.949	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017553	NO2NO3-N	1.08	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017695	NO2NO3-N	0.595	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017519	Total-P	0.356	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017695	Total-P	2.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017700	O-Phosphate-P	1.45	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P350234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017129	Sucralose	3.80	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P350331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
LFB	2,4-D	29.6	LCS	P	0 - 30
LFB	Acetaminophen	15.4	LCS	P	0 - 30
LFB	Bentazon	10.3	LCS	P	0 - 30
LFB	Carbamazepine	2.51	LCS	P	0 - 30
LFB	Diuron	4.14	LCS	P	0 - 30
LFB	Fenuron	8.57	LCS	P	0 - 30
LFB	Fluridone	3.51	LCS	P	0 - 30
LFB	Hydrocodone	3.72	LCS	P	0 - 30
LFB	Ibuprofen	7.63	LCS	P	0 - 30
LFB	Imazapyr	4.06	LCS	P	0 - 30
LFB	Imidacloprid	6.58	LCS	P	0 - 30
LFB	Linuron	1.81	LCS	P	0 - 30
LFB	MCP	40.5	LCS	F	0 - 30
LFB	Naproxen	28.2	LCS	P	0 - 30
LFB	Primidone	1.36	LCS	P	0 - 30
LFB	Pyraclostrobin	6.43	LCS	P	0 - 30
LFB	Triclopyr	42.9	LCS	F	0 - 30

Reference Method: SM 2120 B
Batch ID: P350295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017515	Color (true)	3.41	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P350299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017518	Color (true)	0.0720	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P350424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017691	Total Alkalinity	0.0281	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P350586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P350586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017552	TDS	1.51	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P350587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017729	TDS	1.79	Sample	P	0 - 10

Reference Method: SM 2540 D-97
 Batch ID: P350576

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017552	TSS	2.82	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P350427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017691	Fluoride	0.986	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P350404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017521	Organic Carbon	0.989	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P350548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017596	Organic Carbon	0.448	Spike	P	0 - 20

* 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: 2017617
Field Sample ID: 20030693

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	113	P	30 - 160
EPA 8321B	Acetaminophen-d4	133	P	30 - 160
EPA 8321B	Carbamazepine-d10	56.9	P	30 - 160
EPA 8321B	Diuron-d6	62.3	P	30 - 160
EPA 8321B	Ibuprofen-d3	85.5	P	30 - 160
EPA 8321B	Primidone-d5	97.9	P	30 - 160
EPA 8321B	Sucralose-d6	91.9	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A85936

Included Lab Sample IDs: 2017588, 2017589, 2017590, 2017591, 2017592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	99.2	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A85945

Included Lab Sample IDs: 2017578, 2017579, 2017580, 2017581, 2017582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105
Turbidity	102	101	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A85946

Included Lab Sample IDs: 2017578, 2017579, 2017580, 2017581, 2017582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	102	P/P	90 - 115
Color (true)	99.6	98.7	P/P	90 - 115

Reference Method: EPA 8321B

Run ID: A85983

Included Lab Sample IDs: 2017617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	92.5	96.8	P/P	60 - 160

Reference Method: SM 5310 B-00

Run ID: A85992

Included Lab Sample IDs: 2017583, 2017584, 2017585, 2017586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	96.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A85999

Included Lab Sample IDs: 2017578, 2017579, 2017580, 2017581, 2017582

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

Reference Method: SM 4500 F-C-97

Run ID: A85999

Included Lab Sample IDs: 2017578, 2017579, 2017580, 2017581, 2017582

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86017

Included Lab Sample IDs: 2017583, 2017584, 2017585, 2017586, 2017587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	106	P/P	90 - 110
Kjeldahl Nitrogen	106	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86032

Included Lab Sample IDs: 2017583, 2017584, 2017585, 2017586, 2017587

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

Reference Method: SM 5310 B-00

Run ID: A86036

Included Lab Sample IDs: 2017587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	96.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86042

Included Lab Sample IDs: 2017618, 2017619, 2017620, 2017621, 2017622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	104	P/P	95 - 105
Calcium	104	102	P/P	90 - 110
Iron	101	99.0	P/P	90 - 110
Iron	99.3	101	P/P	95 - 105
Magnesium	102	99.2	P/P	90 - 110
Magnesium	99.5	102	P/P	95 - 105
Potassium	100	98.0	P/P	90 - 110
Potassium	98.0	100	P/P	95 - 105
Sodium	98.3	99.9	P/P	95 - 105
Sodium	99.9	98.1	P/P	90 - 110
Zinc	103	104	P/P	95 - 105
Zinc	104	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86049

Included Lab Sample IDs: 2017578, 2017579, 2017580, 2017581, 2017582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	103	101	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86052

Included Lab Sample IDs: 2017584, 2017585, 2017586

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86052

Included Lab Sample IDs: 2017584, 2017585, 2017586

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86058

Included Lab Sample IDs: 2017583, 2017587

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86067

Included Lab Sample IDs: 2017583, 2017584, 2017585, 2017586, 2017587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86106

Included Lab Sample IDs: 2017618, 2017619, 2017620, 2017621, 2017622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	97.7	98.7	P/P	90 - 110
Arsenic	98.7	99.1	P/P	90 - 110
Cadmium	100	99.8	P/P	90 - 110
Cadmium	98.1	100	P/P	90 - 110
Chromium	96.7	97.4	P/P	90 - 110
Chromium	97.4	99.0	P/P	90 - 110
Copper	96.8	97.4	P/P	90 - 110
Copper	98.6	96.8	P/P	90 - 110
Lead	104	105	P/P	90 - 110
Lead	105	104	P/P	90 - 110
Nickel	97.1	97.5	P/P	90 - 110
Nickel	97.9	97.1	P/P	90 - 110
Silver	97.4	98.1	P/P	90 - 110
Silver	98.1	98.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A86112

Included Lab Sample IDs: 2017617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	98.9	100	P/P	50 - 150
Bentazon	113	139	P/P	50 - 160
Ibuprofen	97.9	86.6	P/P	50 - 160
MCPD	104	111	P/P	50 - 150
Naproxen	108	90.5	P/P	50 - 160
Triclopyr	88.9	93.2	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A86195

Included Lab Sample IDs: 2017617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	117	117	P/P	60 - 150
Carbamazepine	101	99.5	P/P	60 - 150
Diuron	127	120	P/P	60 - 150
Fenuron	108	109	P/P	60 - 150
Fluridone	112	110	P/P	60 - 160
Hydrocodone	114	113	P/P	60 - 150
Imazapyr	109	99.8	P/P	50 - 150
Imidacloprid	117	111	P/P	60 - 150
Linuron	104	107	P/P	60 - 150
Primidone	119	112	P/P	60 - 150
Pyraclostrobin	101	94.5	P/P	60 - 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			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity							1.27	
	Turbidity							0.0	
EPA 200.7 Rev. 4.4	Calcium	102		105	104				0.0335
	Iron	103		104	103	104			1.09
	Magnesium	106		101	104	107			1.44
	Potassium	100		99.4	101	103			1.26
	Sodium	98.0		99.1	97.3				0.994
	Zinc	102		105	111	108			2.21
EPA 200.8 Rev. 5.4	Arsenic	102		106	98.5	107			7.68
	Cadmium	105		109	101	108			6.38
	Chromium	102		103	96.5	103			6.87
	Copper	99.0		101	93.2	101			7.64
	Lead	102		105	98.1	106			7.46
	Nickel	101		102	94.2	103			8.72
	Silver	101		102	97.6	102			4.46
EPA 300.0 Rev. 2.1	Chloride	102		93.0	94.4			1.91	
	Sulfate	101		95.7	97.1			1.47	
EPA 350.1 Rev. 2.0	Ammonia-N	103		99.5	100				0.551
	Ammonia-N	101		101	103				1.13
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107		106	105				0.949
EPA 353.2 Rev. 2.0	NO2NO3-N	102		98.1	99.6				1.08
	NO2NO3-N	101		99.5					0.595
EPA 365.1 Rev. 2.0	Total-P	101		96.9	96.5				0.356
	Total-P	96.4		93.6	96.8				2.76
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8		96.0	97.4				1.45
EPA 8321B	2,4-D	101	75.1				29.6		
	Acetaminophen	131	113				15.4		
	Bentazon	110	99.5				10.3		
	Carbamazepine	92.3	90.0				2.51		
	Diuron	91.6	95.4				4.14		
	Fenuron	117	107				8.57		
	Fluridone	79.5	76.8				3.51		
	Hydrocodone	105	101				3.72		
	Ibuprofen	88.3	81.8				7.63		
	Imazapyr	102	98.2				4.06		
	Imidacloprid	113	106				6.58		
	Linuron	76.1	74.7				1.81		
	MCP	109	72.1				40.5		
	Naproxen	93.1	70.1				28.2		
	Primidone	109	108				1.36		
	Pyraclostrobin	78.9	74.0				6.43		
	Sucralose	107		109	105				3.80
	Triclopyr	100	64.7				42.9		
SM 2120 B	Color (true)	96.1						3.41	
	Color (true)	96.4						0.0720	
SM 2320 B-97	Total Alkalinity	103						0.0281	
SM 2540 C-97	TDS							1.51	
	TDS							1.79	
SM 2540 D-97	TSS							2.82	
SM 4500 F-C-97	Fluoride	97.7		99.2	97.9				0.986
SM 5310 B-00	Organic Carbon	94.3		96.0	97.2				0.989
	Organic Carbon	98.1		108					0.448

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2017578, 2017579, 2017580, 2017581, 2017582
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2017618, 2017619, 2017620, 2017621, 2017622
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2017618, 2017619, 2017620, 2017621, 2017622
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2017578, 2017579, 2017580, 2017581, 2017582
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2017578, 2017579, 2017580, 2017581, 2017582
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2017583, 2017584, 2017585, 2017586, 2017587
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2017583, 2017584, 2017585, 2017586, 2017587
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2017583, 2017584, 2017585, 2017586, 2017587
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2017583, 2017584, 2017585, 2017586, 2017587
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2017588, 2017589, 2017590, 2017591, 2017592
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2017617
SM 2120 B / E31780	True Color measured at 450 nm	2017578, 2017579, 2017580, 2017581, 2017582
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2017578, 2017579, 2017580, 2017581, 2017582
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2017578, 2017579, 2017580, 2017581, 2017582
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2017578, 2017579, 2017580, 2017581, 2017582
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2017578, 2017579, 2017580, 2017581, 2017582
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2017583, 2017584, 2017585, 2017586, 2017587

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	08/16/2018			08/16/2018 15:39	William L. Brown IV	2017578, 2017579, 2017580, 2017581, 2017582
EPA 200.7 Rev. 4.4	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/21/2018 13:34	Betina Topolski	2017618
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/21/2018 14:05	Betina Topolski	2017619
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/21/2018 14:11	Betina Topolski	2017620
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/21/2018 14:18	Betina Topolski	2017621
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/21/2018 14:24	Betina Topolski	2017622
EPA 200.8 Rev. 5.4	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/23/2018 19:39	Allison Taylor	2017618
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/23/2018 19:48	Allison Taylor	2017619
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/23/2018 20:27	Allison Taylor	2017620
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/23/2018 20:36	Allison Taylor	2017621
	08/16/2018	08/20/2018 13:00	Elliott D. Healy	08/23/2018 20:46	Allison Taylor	2017622
EPA 300.0 Rev. 2.1	08/16/2018			08/22/2018 16:09	Lipi Saha	2017578
	08/16/2018			08/22/2018 16:21	Lipi Saha	2017579
	08/16/2018			08/22/2018 16:32	Lipi Saha	2017580
	08/16/2018			08/22/2018 17:08	Lipi Saha	2017581
	08/16/2018			08/22/2018 17:20	Lipi Saha	2017582
EPA 350.1 Rev. 2.0	08/16/2018			08/22/2018 11:56	Ping Hua	2017583
	08/16/2018			08/22/2018 11:57	Ping Hua	2017584
	08/16/2018			08/22/2018 12:05	Ping Hua	2017585
	08/16/2018			08/22/2018 12:07	Ping Hua	2017586
	08/16/2018			08/22/2018 12:50	Ping Hua	2017587
EPA 351.2 Rev. 2.0	08/16/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 15:06	Joseph Suarez	2017583
	08/16/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 15:07	Joseph Suarez	2017584
	08/16/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 15:15	Joseph Suarez	2017585
	08/16/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 15:17	Joseph Suarez	2017586
	08/16/2018	08/17/2018 08:11	Adrian Shelby	08/20/2018 15:18	Joseph Suarez	2017587
EPA 353.2 Rev. 2.0	08/16/2018			08/21/2018 12:48	Lauren Bottorf	2017583
	08/16/2018			08/21/2018 12:50	Lauren Bottorf	2017584
	08/16/2018			08/21/2018 12:51	Lauren Bottorf	2017585
	08/16/2018			08/21/2018 13:04	Lauren Bottorf	2017586
	08/16/2018			08/21/2018 13:05	Lauren Bottorf	2017587
EPA 365.1 Rev. 2.0	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 09:25	Beverly Y. Sanders	2017584
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 09:29	Beverly Y. Sanders	2017585
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 09:30	Beverly Y. Sanders	2017586
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:03	Beverly Y. Sanders	2017583
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:12	Beverly Y. Sanders	2017587
EPA 365.1 Rev. 2.0 dissolved	08/16/2018			08/16/2018 15:43	Julia Storbeck	2017588, 2017589
	08/16/2018			08/16/2018 15:44	Julia Storbeck	2017590
	08/16/2018			08/16/2018 15:45	Julia Storbeck	2017591

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	08/16/2018			08/16/2018 15:51	Julia Storbeck	2017592
EPA 8321B	08/16/2018	08/17/2018 09:00	Mohammad Ghaffari	08/18/2018 04:32	Mohammad Ghaffari	2017617
	08/16/2018	08/21/2018 15:00	Hoor Shaik	08/25/2018 04:14	Juyoung Kim	2017617
	08/16/2018	08/21/2018 15:00	Hoor Shaik	08/25/2018 14:30	Juyoung Kim	2017617
SM 2120 B	08/16/2018			08/16/2018 16:06	Tanya Welborn	2017582
	08/16/2018			08/16/2018 16:09	Tanya Welborn	2017578
	08/16/2018			08/16/2018 16:11	Tanya Welborn	2017580, 2017581
	08/16/2018			08/16/2018 16:17	Tanya Welborn	2017579
SM 2320 B-97	08/16/2018			08/18/2018 03:14	Dale L. Simmons	2017578
	08/16/2018			08/18/2018 03:24	Dale L. Simmons	2017579
	08/16/2018			08/18/2018 03:35	Dale L. Simmons	2017580
	08/16/2018			08/18/2018 03:45	Dale L. Simmons	2017581
	08/16/2018			08/18/2018 03:56	Dale L. Simmons	2017582
SM 2540 C-97	08/16/2018			08/17/2018 16:00	William L. Brown IV	2017578, 2017579, 2017580, 2017581, 2017582
SM 2540 D-97	08/16/2018			08/17/2018 17:25	William L. Brown IV	2017578, 2017579, 2017580, 2017581, 2017582
SM 4500 F-C-97	08/16/2018			08/18/2018 03:14	Dale L. Simmons	2017578
	08/16/2018			08/18/2018 03:24	Dale L. Simmons	2017579
	08/16/2018			08/18/2018 03:35	Dale L. Simmons	2017580
	08/16/2018			08/18/2018 03:45	Dale L. Simmons	2017581
	08/16/2018			08/18/2018 03:56	Dale L. Simmons	2017582
SM 5310 B-00	08/16/2018			08/18/2018 17:31	Megan Treadwell	2017583
	08/16/2018			08/18/2018 17:47	Megan Treadwell	2017584
	08/16/2018			08/18/2018 18:00	Megan Treadwell	2017585
	08/16/2018			08/18/2018 18:14	Megan Treadwell	2017586
	08/16/2018			08/20/2018 21:26	Megan Treadwell	2017587