

Chemical Analysis Report

NE-DIST-2018-08-23-01

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

Event Description: **LSJR Southside and East**

Request ID: **RQ-2018-08-20-18**

Customer: **NE-DIST**

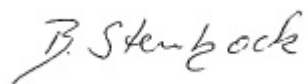
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 11-SEP-2018 16:36



NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: NEWCASTLE CR @ FT CAROLINE HILLS RD. Collection Date/Time: 08/22/2018 09:20

Field ID: 20030872

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019432	EPA 8321B	2,4-D	0.013		ug/L	P350552	MS
		Bentazon	0.32		ug/L	P350552	
		MCP	0.0077	I	ug/L	P350552	MS
		Triclopyr**	0.0040	U	ug/L	P350552	MS
		Imidacloprid	0.057		ug/L	P350552	
		Diuron	0.0063	I	ug/L	P350552	
		Pyraclostrobin**	0.0020	U	ug/L	P350552	
		Primidone**	0.0040	U	ug/L	P350552	
		Linuron	0.0040	U	ug/L	P350552	
		Acetaminophen**	0.0080	U	ug/L	P350552	
		Fenuron	0.016	U	ug/L	P350552	
		Imazapyr**	0.028		ug/L	P350552	
		Carbamazepine**	8.0E-04	U	ug/L	P350552	
		Fluridone**	4.0E-04	U	ug/L	P350552	
		Hydrocodone**	8.0E-04	U	ug/L	P350552	
		Naproxen**	0.0080	U	ug/L	P350552	
		Ibuprofen**	0.020	U	ug/L	P350552	
		Sucralose**	0.025	I	ug/L	P350504	

Sample Location: MILLER CR @ SCHUMACHER

Collection Date/Time: 08/22/2018 10:15

Field ID: 20030794

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019433	EPA 8321B	2,4-D	0.0020	U	ug/L	P350552	MS
		Bentazon	0.0014	I	ug/L	P350552	
		MCP	0.0020	U	ug/L	P350552	MS
		Triclopyr**	0.0040	U	ug/L	P350552	MS
		Imidacloprid	0.059		ug/L	P350552	
		Diuron	0.0030	I	ug/L	P350552	
		Pyraclostrobin**	0.0020	U	ug/L	P350552	
		Primidone**	0.0040	U	ug/L	P350552	
		Linuron	0.0040	U	ug/L	P350552	
		Acetaminophen**	0.0080	U	ug/L	P350552	
		Fenuron	0.016	U	ug/L	P350552	
		Imazapyr**	0.031		ug/L	P350552	
		Carbamazepine**	8.0E-04	U	ug/L	P350552	
		Fluridone**	4.0E-04	U	ug/L	P350552	
		Hydrocodone**	8.0E-04	U	ug/L	P350552	
		Naproxen**	0.0080	U	ug/L	P350552	
		Ibuprofen**	0.020	U	ug/L	P350552	
		Sucralose**	0.12		ug/L	P350504	

Sample Location: MILLER CR @ BEACH BLVD

Collection Date/Time: 08/22/2018 09:55

Field ID: 20030828

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019392	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P350782	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P350986	
		Sulfate	46		mg SO4/L	P350989	
	SM 2120 B	Color (true)	55	A	PCU	P350677	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P350902	
	SM 2540 C-97	TDS	227	A	mg/L	P351066	
	SM 2540 D-97	TSS	3	IA	mg/L	P351028	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P350904	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P350915	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.64		mg N/L	P350752	
2019393	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P350855	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P350909	
	SM 5310 B-00	Organic Carbon	7.2		mg C/L	P350876	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.033		mg P/L	P350695	
	dissolved						
2019431	EPA 8321B	2,4-D	0.0020	U	ug/L	P350552	MS
		Bentazon	0.0019	I	ug/L	P350552	
		MCP	0.0020	U	ug/L	P350552	MS
		Triclopyr**	0.0040	U	ug/L	P350552	MS
		Imidacloprid	0.044		ug/L	P350552	
		Diuron	0.0032	I	ug/L	P350552	
		Pyraclostrobin**	0.0020	U	ug/L	P350552	
		Primidone**	0.0040	U	ug/L	P350552	
		Linuron	0.0040	U	ug/L	P350552	
		Acetaminophen**	0.0080	U	ug/L	P350552	
		Fenuron	0.016	U	ug/L	P350552	
		Imazapyr**	0.025		ug/L	P350552	
		Carbamazepine**	8.0E-04	U	ug/L	P350552	
		Fluridone**	4.0E-04	U	ug/L	P350552	
		Hydrocodone**	8.0E-04	U	ug/L	P350552	
		Naproxen**	0.0080	U	ug/L	P350552	
		Ibuprofen**	0.020	U	ug/L	P350552	
		Sucralose**	0.19		ug/L	P350504	

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: MIRAMAR CR @ GADSEN RD

Collection Date/Time: 08/22/2018 10:35

Field ID: 20030825

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019434	EPA 8321B	2,4-D	0.057		ug/L	P350552	MS
		Bentazon	0.0059		ug/L	P350552	
		MCP	0.0060	I	ug/L	P350552	MS
		Triclopyr**	0.0040	U	ug/L	P350552	MS
		Imidacloprid	0.079		ug/L	P350552	
		Diuron	0.027		ug/L	P350552	
		Pyraclostrobin**	0.0020	U	ug/L	P350552	
		Primidone**	0.0040	U	ug/L	P350552	
		Linuron	0.0040	U	ug/L	P350552	
		Acetaminophen**	0.0080	U	ug/L	P350552	
		Fenuron	0.016	U	ug/L	P350552	
		Imazapyr**	0.099		ug/L	P350552	
		Carbamazepine**	0.035		ug/L	P350552	
		Fluridone**	4.0E-04	U	ug/L	P350552	
		Hydrocodone**	8.0E-04	U	ug/L	P350552	
		Naproxen**	0.0080	U	ug/L	P350552	
		Ibuprofen**	0.020	U	ug/L	P350552	
		Sucralose**	1.2		ug/L	P350504	

Sample Location: MIRAMAR AT SAN JOSE

Collection Date/Time: 08/22/2018 10:45

Field ID: G2NE1164

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019435	EPA 8321B	2,4-D	0.046		ug/L	P350552	MS
		Bentazon	0.013		ug/L	P350552	
		MCP	0.0052	I	ug/L	P350552	MS
		Triclopyr**	0.0040	U	ug/L	P350552	MS
		Imidacloprid	0.086		ug/L	P350552	
		Diuron	0.024		ug/L	P350552	
		Pyraclostrobin**	0.0020	U	ug/L	P350552	
		Primidone**	0.0040	U	ug/L	P350552	
		Linuron	0.0040	U	ug/L	P350552	
		Acetaminophen**	0.0080	U	ug/L	P350552	
		Fenuron	0.016	U	ug/L	P350552	
		Imazapyr**	0.085		ug/L	P350552	
		Carbamazepine**	0.031		ug/L	P350552	
		Fluridone**	4.0E-04	U	ug/L	P350552	
		Hydrocodone**	8.0E-04	U	ug/L	P350552	
		Naproxen**	0.0080	U	ug/L	P350552	
		Ibuprofen**	0.020	U	ug/L	P350552	
		Sucralose**	1.2		ug/L	P350504	

Sample Location: OLDFIELD CR @ JULINGTON CREEK ROAD Collection Date/Time: 08/22/2018 11:30

Field ID: 20030684

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019395	EPA 180.1 Rev. 2.0	Turbidity	5.0	A	NTU	P350783	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P350986	
		Sulfate	23		mg SO4/L	P350989	
		Color (true)	64		PCU	P350677	
	SM 2120 B	Total Alkalinity	73		mg CaCO3/L	P350902	
	SM 2540 C-97	TDS	170		mg/L	P351066	
	SM 2540 D-97	TSS	3	I	mg/L	P351028	
	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P350904	
	2019397	Ammonia-N	0.035		mg N/L	P350915	
		Kjeldahl Nitrogen	0.50		mg N/L	P350753	
		NO2NO3-N	0.29		mg N/L	P350855	
		Total-P	0.082		mg P/L	P350909	
		Organic Carbon	8.7		mg C/L	P350876	
2019399	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P350696	
2019436	EPA 200.7 Rev. 4.4	Calcium	30.9		mg/L	P350680	
		Iron	930		ug/L	P350680	
		Magnesium	6.58		mg/L	P350680	
		Potassium	2.4		mg/L	P350680	
		Sodium	14.8		mg/L	P350680	
		Zinc	5.0	U	ug/L	P350680	
	EPA 200.8 Rev. 5.4	Arsenic	1.32		ug/L	P350680	
		Cadmium	0.020	U	ug/L	P350680	
		Chromium	0.40	U	ug/L	P350680	
		Copper	1.17		ug/L	P350680	
		Lead	0.15	I	ug/L	P350680	
		Nickel	0.38	I	ug/L	P350680	
		Silver	0.010	U	ug/L	P350680	

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: OLDFIELD CR @ LORETTO RD

Collection Date/Time: 08/22/2018 12:05

Field ID: 20030563

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2019396	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P350783	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P350986	
		Sulfate	15		mg SO4/L	P350989	
		Color (true)	57		PCU	P350677	
	SM 2120 B	Total Alkalinity	87		mg CaCO3/L	P350902	
	SM 2540 C-97	TDS	164		mg/L	P351066	
	SM 2540 D-97	TSS	3	I	mg/L	P351028	
	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P350904	
	2019398	Ammonia-N	0.051		mg N/L	P350915	
		Kjeldahl Nitrogen	0.53		mg N/L	P350753	
		NO2NO3-N	0.19		mg N/L	P350856	
		Total-P	0.092		mg P/L	P350767	
		Organic Carbon	8.4		mg C/L	P350876	
2019400	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P350696	
2019437	EPA 200.7 Rev. 4.4	Calcium	34.5		mg/L	P350680	
		Iron	1.21E+03		ug/L	P350680	
		Magnesium	4.55		mg/L	P350680	
		Potassium	1.8		mg/L	P350680	
		Sodium	11.9		mg/L	P350680	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P350680	
		Arsenic	1.54		ug/L	P350680	
		Cadmium	0.020	U	ug/L	P350680	
		Chromium	0.40	U	ug/L	P350680	
		Copper	1.38		ug/L	P350680	
		Lead	0.10	I	ug/L	P350680	
		Nickel	0.39	I	ug/L	P350680	
		Silver	0.010	U	ug/L	P350680	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 7188

Event(s)

NE-DIST-2018-08-23-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: PCR-FILTER container for NEWCASTLE CR @ FT CAROLINE HILLS RD container was received empty.

Resolution: Jeremy Parrish was notified; email added to file.

Authorized by/Date: Joshua Ayres 9/4/2018

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350782

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350783

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350680

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: P350680

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: P350986

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350915

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350753

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350855

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350856

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350767

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350909

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350695

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350696

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

Reference Method: EPA 8321B
Batch ID: P350504

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P350552

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
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: P350677

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P350902

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

Reference Method: SM 2540 C-97
Batch ID: P351066

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P351028

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350904

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350876

Component	Result	Code	Units
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Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P350876

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: P350680

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	107		P	85 - 115
Iron	105		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	102		P	85 - 115
Sodium	101		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350680

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	98.9		P	85 - 115
Copper	97.6		P	85 - 115
Lead	102		P	85 - 115
Nickel	101		P	85 - 115
Silver	99.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350986

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350915

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350753

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P350855

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P350856

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P350767

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P350909

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P350695

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P350696

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.6		P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P350504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	89.4		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P350552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	86.0		P	40 - 150
Acetaminophen	113		P	30 - 150
Bentazon	124		P	30 - 150
Carbamazepine	73.5		P	40 - 150
Diuron	79.4		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	70.9		P	40 - 150
Hydrocodone	95.7		P	40 - 150
Ibuprofen	99.1		P	40 - 150
Imazapyr	89.1		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P350552

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Imidacloprid	104		P	40 - 160
Linuron	58.1		P	40 - 150
MCP	99.3		P	40 - 150
Naproxen	82.8		P	40 - 150
Primidone	102		P	40 - 150
Pyraclostrobin	61.7		P	40 - 150
Triclopyr	104		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P350677

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.3		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P350902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P350904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350876

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019133	Calcium	108	109	P/P	80 - 120
2019133	Iron	106	107	P/P	80 - 120
2019133	Magnesium	109	110	P/P	80 - 120
2019133	Potassium	107	107	P/P	80 - 120
2019133	Sodium	102	102	P/P	80 - 120
2019133	Zinc	102	104	P/P	80 - 120
2019437	Calcium	105		P	80 - 120
2019437	Iron	104		P	80 - 120
2019437	Magnesium	103		P	80 - 120
2019437	Potassium	100		P	80 - 120
2019437	Sodium	97.9		P	80 - 120
2019437	Zinc	102		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019133	Arsenic	102	100	P/P	80 - 120
2019133	Cadmium	103	101	P/P	80 - 120
2019133	Chromium	97.3	97.7	P/P	80 - 120
2019133	Copper	98.8	96.9	P/P	80 - 120
2019133	Lead	102	99.3	P/P	80 - 120
2019133	Nickel	99.9	98.2	P/P	80 - 120
2019133	Silver	99.0	98.0	P/P	80 - 120
2019437	Arsenic	105		P	80 - 120
2019437	Cadmium	103		P	80 - 120
2019437	Chromium	98.2		P	80 - 120
2019437	Copper	97.0		P	80 - 120
2019437	Lead	103		P	80 - 120
2019437	Nickel	99.3		P	80 - 120
2019437	Silver	99.4		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019112	Chloride	101		P	90 - 110
2019302	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019112	Sulfate	98.6		P	90 - 110
2019302	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019397	Ammonia-N	95.6	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019144	Kjeldahl Nitrogen	106	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019397	Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019141	NO2NO3-N	96.1	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019398	NO2NO3-N	97.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019632	Total-P	96.4	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019393	Total-P	101	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019127	O-Phosphate-P	96.9	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019399	O-Phosphate-P	96.6	96.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P350504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019172	Sucralose	103	106	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P350552

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019699	2,4-D	180	141	F/P	40 - 150
2019699	Acetaminophen	135	138	P/P	30 - 150
2019699	Bentazon	99.7	87.8	P/P	30 - 150
2019699	Carbamazepine	56.2	56.9	P/P	40 - 150
2019699	Diuron	64.4	64.8	P/P	40 - 150
2019699	Fenuron	75.4	76.2	P/P	40 - 150
2019699	Fluridone	58.9	57.5	P/P	40 - 150
2019699	Hydrocodone	84.2	80.4	P/P	40 - 150
2019699	Ibuprofen	96.9	92.2	P/P	40 - 150
2019699	Imazapyr	100	91.1	P/P	40 - 150
2019699	Imidacloprid	158	156	P/P	40 - 160
2019699	Linuron	54.8	57.3	P/P	40 - 150
2019699	MCPP	162	170	F/F	40 - 150
2019699	Naproxen	109	104	P/P	40 - 150
2019699	Primidone	91.9	91.1	P/P	40 - 150
2019699	Pyraclostrobin	71.0	68.6	P/P	40 - 150
2019699	Triclopyr	182	182	F/F	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P350904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019112	Fluoride	98.4	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2019393	Organic Carbon	99.6	99.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019302	Turbidity	2.99	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019395	Turbidity	8.05	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P350680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019133	Calcium	1.41	Spike	P	0 - 20
2019133	Iron	1.41	Spike	P	0 - 20
2019133	Magnesium	0.918	Spike	P	0 - 20
2019133	Potassium	0.732	Spike	P	0 - 20
2019133	Sodium	0.0594	Spike	P	0 - 20
2019133	Zinc	2.00	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P350680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019133	Arsenic	1.96	Spike	P	0 - 20
2019133	Cadmium	2.05	Spike	P	0 - 20
2019133	Chromium	0.403	Spike	P	0 - 20
2019133	Copper	1.97	Spike	P	0 - 20
2019133	Lead	2.82	Spike	P	0 - 20
2019133	Nickel	1.74	Spike	P	0 - 20
2019133	Silver	1.02	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Chloride	0.922	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P350989

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Sulfate	0.483	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019397	Ammonia-N	1.70	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019144	Kjeldahl Nitrogen	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019397	Kjeldahl Nitrogen	0.555	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019141	NO2NO3-N	2.28	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019398	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019632	Total-P	1.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019393	Total-P	4.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019127	O-Phosphate-P	0.515	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P350696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019399	O-Phosphate-P	0.341	Spike	P	0 - 20

Reference Method: EPA 8321B
 Batch ID: P350504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019172	Sucralose	2.64	Spike	P	0 - 30

Reference Method: EPA 8321B
 Batch ID: P350552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019699	2,4-D	16.2	Spike	P	0 - 30
2019699	Acetaminophen	2.32	Spike	P	0 - 30
2019699	Bentazon	12.0	Spike	P	0 - 30
2019699	Carbamazepine	1.29	Spike	P	0 - 30
2019699	Diuron	0.587	Spike	P	0 - 30
2019699	Fenuron	1.09	Spike	P	0 - 30
2019699	Fluridone	1.59	Spike	P	0 - 30
2019699	Hydrocodone	4.54	Spike	P	0 - 30
2019699	Ibuprofen	4.93	Spike	P	0 - 30
2019699	Imazapyr	5.71	Spike	P	0 - 30
2019699	Imidacloprid	1.75	Spike	P	0 - 30
2019699	Linuron	4.50	Spike	P	0 - 30
2019699	MCP	5.31	Spike	P	0 - 30
2019699	Naproxen	4.41	Spike	P	0 - 30
2019699	Primidone	0.918	Spike	P	0 - 30
2019699	Pyraclostrobin	3.38	Spike	P	0 - 30
2019699	Triclopyr	0.0605	Spike	P	0 - 30

Reference Method: SM 2120 B
 Batch ID: P350677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019392	Color (true)	2.17	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P350902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Total Alkalinity	0.187	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P351066

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: P351066

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019392	TDS	1.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P350904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019112	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P350876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2019393	Organic Carbon	0.111	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: 2019431
Field Sample ID: 20030828

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	106	P	30 - 160
EPA 8321B	Acetaminophen-d4	133	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.3	P	30 - 160
EPA 8321B	Diuron-d6	73.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	72.5	P	30 - 160
EPA 8321B	Primidone-d5	97.3	P	30 - 160
EPA 8321B	Sucralose-d6	84.9	P	40 - 160

Lab Sample ID: 2019432
Field Sample ID: 20030872

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	127	P	30 - 160
EPA 8321B	Acetaminophen-d4	151	P	30 - 160
EPA 8321B	Carbamazepine-d10	72.9	P	30 - 160
EPA 8321B	Diuron-d6	73.7	P	30 - 160
EPA 8321B	Ibuprofen-d3	74.6	P	30 - 160
EPA 8321B	Primidone-d5	100	P	30 - 160
EPA 8321B	Sucralose-d6	79.0	P	40 - 160

Lab Sample ID: 2019433
Field Sample ID: 20030794

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	105	P	30 - 160
EPA 8321B	Acetaminophen-d4	153	P	30 - 160
EPA 8321B	Carbamazepine-d10	63.8	P	30 - 160
EPA 8321B	Diuron-d6	66.4	P	30 - 160
EPA 8321B	Ibuprofen-d3	74.1	P	30 - 160
EPA 8321B	Primidone-d5	105	P	30 - 160
EPA 8321B	Sucralose-d6	80.7	P	40 - 160

Lab Sample ID: 2019434
Field Sample ID: 20030825

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	105	P	30 - 160
EPA 8321B	Acetaminophen-d4	146	P	30 - 160
EPA 8321B	Carbamazepine-d10	63.1	P	30 - 160
EPA 8321B	Diuron-d6	64.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	69.2	P	30 - 160
EPA 8321B	Primidone-d5	98.6	P	30 - 160
EPA 8321B	Sucralose-d6	84.4	P	40 - 160

Lab Sample ID: 2019435
Field Sample ID: G2NE1164

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	108	P	30 - 160
EPA 8321B	Acetaminophen-d4	154	P	30 - 160
EPA 8321B	Carbamazepine-d10	67.9	P	30 - 160
EPA 8321B	Diuron-d6	66.3	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 2019435
Field Sample ID: G2NE1164

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Ibuprofen-d3	75.3	P	30 - 160
EPA 8321B	Primidone-d5	111	P	30 - 160
EPA 8321B	Sucralose-d6	74.7	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A86089

Included Lab Sample IDs: 2019392, 2019395, 2019396

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	99.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A86099

Included Lab Sample IDs: 2019394, 2019399, 2019400

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	98.1	P/P	90 - 110
O-Phosphate-P	99.7	99.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A86110

Included Lab Sample IDs: 2019431, 2019432, 2019433, 2019434, 2019435

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	86.8	90.1	P/P	60 - 160

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A86111

Included Lab Sample IDs: 2019436, 2019437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	99.2	P/P	90 - 110
Iron	103	100	P/P	90 - 110
Magnesium	102	99.3	P/P	90 - 110
Potassium	101	98.0	P/P	90 - 110
Sodium	98.6	95.5	P/P	90 - 110
Zinc	95.1	96.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A86127

Included Lab Sample IDs: 2019392, 2019395, 2019396

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

Reference Method: EPA 8321B

Run ID: A86134

Included Lab Sample IDs: 2019431, 2019432, 2019433, 2019434, 2019435

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	83.4	104	P/P	50 - 150
Bentazon	85.1	88.2	P/P	50 - 160
Ibuprofen	108	97.5	P/P	50 - 160
MCP	94.4	93.9	P/P	50 - 150
Naproxen	74.5	108	P/P	50 - 160
Triclopyr	96.4	91.5	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86146

Included Lab Sample IDs: 2019398

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86149

Included Lab Sample IDs: 2019393

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A86155

Included Lab Sample IDs: 2019393, 2019397, 2019398

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86157

Included Lab Sample IDs: 2019397, 2019398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110
Kjeldahl Nitrogen	103	106	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A86162

Included Lab Sample IDs: 2019393, 2019397, 2019398

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.1	P/P	90 - 110
Organic Carbon	96.3	95.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A86165

Included Lab Sample IDs: 2019432

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bentazon	110	114	P/P	50 - 160

Reference Method: SM 2320 B-97

Run ID: A86172

Included Lab Sample IDs: 2019392, 2019395, 2019396

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A86172

Included Lab Sample IDs: 2019392, 2019395, 2019396

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

Reference Method: SM 4500 F-C-97

Run ID: A86172

Included Lab Sample IDs: 2019392, 2019395, 2019396

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A86185

Included Lab Sample IDs: 2019393, 2019397, 2019398

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86194

Included Lab Sample IDs: 2019392, 2019395, 2019396

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

Reference Method: EPA 8321B

Run ID: A86195

Included Lab Sample IDs: 2019431, 2019432, 2019433, 2019434, 2019435

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	124	118	P/P	60 - 150
Carbamazepine	100	96.0	P/P	60 - 150
Diuron	120	118	P/P	60 - 150
Fenuron	105	107	P/P	60 - 150
Fluridone	107	110	P/P	60 - 160
Hydrocodone	111	115	P/P	60 - 150
Imazapyr	100	107	P/P	50 - 150
Imidacloprid	109	108	P/P	60 - 150
Linuron	102	106	P/P	60 - 150
Primidone	113	123	P/P	60 - 150
Pyraclostrobin	95.4	94.3	P/P	60 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A86203

Included Lab Sample IDs: 2019393, 2019397

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86223

Included Lab Sample IDs: 2019436, 2019437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	95.7	95.9	P/P	90 - 110
Arsenic	95.9	96.4	P/P	90 - 110
Cadmium	94.6	96.6	P/P	90 - 110
Cadmium	95.0	94.6	P/P	90 - 110
Chromium	92.6	94.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A86223

Included Lab Sample IDs: 2019436, 2019437

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	92.9	92.6	P/P	90 - 110
Copper	93.3	93.0	P/P	90 - 110
Copper	93.7	93.3	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Lead	101	103	P/P	90 - 110
Nickel	93.6	94.0	P/P	90 - 110
Nickel	94.0	93.6	P/P	90 - 110
Silver	94.0	94.2	P/P	90 - 110
Silver	94.2	95.2	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.99	
	Turbidity					8.05	
EPA 200.7 Rev. 4.4	Calcium	107	108	109	105		1.41
	Iron	105	106	107	104		1.41
	Magnesium	108	109	110	103		0.918
	Potassium	102	107	107	100		0.732
	Sodium	101	102	102	97.9		0.0594
	Zinc	102	102	104	102		2.00
EPA 200.8 Rev. 5.4	Arsenic	102	102	100	105		1.96
	Cadmium	104	103	101	103		2.05
	Chromium	98.9	97.3	97.7	98.2		0.403
	Copper	97.6	98.8	96.9	97.0		1.97
	Lead	102	102	99.3	103		2.82
	Nickel	101	99.9	98.2	99.3		1.74
	Silver	99.5	99.0	98.0	99.4		1.02
EPA 300.0 Rev. 2.1	Chloride	105	101	100		0.922	
	Sulfate	104	98.6	102		0.483	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	95.6	98.5			1.70
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	106	108			1.19
	Kjeldahl Nitrogen	104	105	106			0.555
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	96.1	99.1			2.28
	NO2NO3-N	99.5	97.0	99.0			1.03
EPA 365.1 Rev. 2.0	Total-P	98.3	96.4	94.8			1.62
	Total-P	98.5	101	96.0			4.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.7	96.9	97.4			0.515
	O-Phosphate-P	98.6	96.6	96.1			0.341
EPA 8321B	2,4-D	86.0	180	141			16.2
	Acetaminophen	113	135	138			2.32
	Bentazon	124	99.7	87.8			12.0
	Carbamazepine	73.5	56.2	56.9			1.29
	Diuron	79.4	64.4	64.8			0.587
	Fenuron	104	75.4	76.2			1.09
	Fluridone	70.9	58.9	57.5			1.59
	Hydrocodone	95.7	84.2	80.4			4.54
	Ibuprofen	99.1	96.9	92.2			4.93
	Imazapyr	89.1	100	91.1			5.71
	Imidacloprid	104	158	156			1.75
	Linuron	58.1	54.8	57.3			4.50
	MCP	99.3	162	170			5.31
	Naproxen	82.8	109	104			4.41
	Primidone	102	91.9	91.1			0.918
	Pyraclostrobin	61.7	71.0	68.6			3.38
	Sucralose	89.4	103	106			2.64
	Triclopyr	104	182	182			0.0605
SM 2120 B	Color (true)	98.3				2.17	
SM 2320 B-97	Total Alkalinity	104				0.187	
SM 2540 C-97	TDS					1.76	
SM 4500 F-C-97	Fluoride	96.6	98.4	98.4			0.0
SM 5310 B-00	Organic Carbon	96.4	99.6	99.4			0.111

Reference Method Descriptions

Method / DoH Cert #

Description

Associated Samples

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2019392, 2019395, 2019396
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2019436, 2019437
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2019436, 2019437
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2019392, 2019395, 2019396
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2019392, 2019395, 2019396
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2019393, 2019397, 2019398
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2019393, 2019397, 2019398
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2019393, 2019397, 2019398
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2019393, 2019397, 2019398
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2019394, 2019399, 2019400
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2019431, 2019432, 2019433, 2019434, 2019435
SM 2120 B / E31780	True Color measured at 450 nm	2019392, 2019395, 2019396
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2019392, 2019395, 2019396
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2019392, 2019395, 2019396
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2019392, 2019395, 2019396
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2019392, 2019395, 2019396
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2019393, 2019397, 2019398

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	08/23/2018			08/23/2018 17:10	Megan Treadwell	2019392, 2019395, 2019396
EPA 200.7 Rev. 4.4	08/23/2018	08/23/2018 17:30	Elliott D. Healy	08/24/2018 14:56	Betina Topolski	2019436
	08/23/2018	08/23/2018 17:30	Elliott D. Healy	08/24/2018 15:04	Betina Topolski	2019437
EPA 200.8 Rev. 5.4	08/23/2018	08/23/2018 17:30	Elliott D. Healy	08/30/2018 22:14	Allison Taylor	2019436
	08/23/2018	08/23/2018 17:30	Elliott D. Healy	08/30/2018 22:53	Allison Taylor	2019437
EPA 300.0 Rev. 2.1	08/23/2018			08/30/2018 15:43	Lipi Saha	2019392
	08/23/2018			08/30/2018 15:55	Lipi Saha	2019395
	08/23/2018			08/30/2018 16:07	Lipi Saha	2019396
EPA 350.1 Rev. 2.0	08/23/2018			08/29/2018 11:58	Ping Hua	2019397
	08/23/2018			08/29/2018 12:04	Ping Hua	2019393
	08/23/2018			08/29/2018 12:05	Ping Hua	2019398
EPA 351.2 Rev. 2.0	08/23/2018	08/27/2018 11:00	Adrian Shelby	08/28/2018 12:33	Joseph Suarez	2019393
	08/23/2018	08/27/2018 11:00	Adrian Shelby	08/28/2018 15:31	Joseph Suarez	2019397
	08/23/2018	08/27/2018 11:00	Adrian Shelby	08/28/2018 15:39	Joseph Suarez	2019398
EPA 353.2 Rev. 2.0	08/23/2018			08/28/2018 12:40	Lauren Bottorf	2019393
	08/23/2018			08/28/2018 12:42	Lauren Bottorf	2019397
	08/23/2018			08/28/2018 12:49	Lauren Bottorf	2019398
EPA 365.1 Rev. 2.0	08/23/2018	08/27/2018 12:15	Sima Feizi	08/28/2018 13:14	Beverly Y. Sanders	2019398
	08/23/2018	08/29/2018 13:20	Sima Feizi	08/30/2018 11:02	Beverly Y. Sanders	2019393
	08/23/2018	08/29/2018 13:20	Sima Feizi	08/30/2018 11:06	Beverly Y. Sanders	2019397
EPA 365.1 Rev. 2.0 dissolved	08/23/2018			08/23/2018 13:59	Julia Storbeck	2019399
	08/23/2018			08/23/2018 14:32	Julia Storbeck	2019394
	08/23/2018			08/23/2018 14:33	Julia Storbeck	2019400
EPA 8321B	08/23/2018	08/23/2018 12:45	Mohammad Ghaffari	08/24/2018 12:50	Mohammad Ghaffari	2019431
	08/23/2018	08/23/2018 12:45	Mohammad Ghaffari	08/24/2018 13:05	Mohammad Ghaffari	2019432
	08/23/2018	08/23/2018 12:45	Mohammad Ghaffari	08/24/2018 13:19	Mohammad Ghaffari	2019433
	08/23/2018	08/23/2018 12:45	Mohammad Ghaffari	08/24/2018 13:34	Mohammad Ghaffari	2019434
	08/23/2018	08/23/2018 12:45	Mohammad Ghaffari	08/24/2018 13:49	Mohammad Ghaffari	2019435
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 07:56	Juyoung Kim	2019431
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 08:31	Juyoung Kim	2019432
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 09:05	Juyoung Kim	2019433
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 09:40	Juyoung Kim	2019434
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 10:14	Juyoung Kim	2019435
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 14:09	Juyoung Kim	2019431
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 14:43	Juyoung Kim	2019432
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 15:18	Juyoung Kim	2019433
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 15:52	Juyoung Kim	2019434
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/26/2018 16:27	Juyoung Kim	2019435
	08/23/2018	08/23/2018 13:00	Hoor Shaik	08/29/2018 02:59	Juyoung Kim	2019432
SM 2120 B	08/23/2018			08/23/2018 15:52	William L. Brown IV	2019392, 2019395

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	08/23/2018			08/23/2018 15:53	William L. Brown IV	2019396
SM 2320 B-97	08/23/2018			08/28/2018 20:49	Dale L. Simmons	2019392
	08/23/2018			08/28/2018 20:59	Dale L. Simmons	2019395
	08/23/2018			08/28/2018 21:10	Dale L. Simmons	2019396
	08/23/2018			08/28/2018 15:02	Yijie Li	2019392, 2019395, 2019396
SM 2540 C-97	08/23/2018			08/28/2018 15:02	Yijie Li	2019392, 2019395, 2019396
SM 2540 D-97	08/23/2018			08/28/2018 20:49	Dale L. Simmons	2019392
SM 4500 F-C-97	08/23/2018			08/28/2018 20:59	Dale L. Simmons	2019395
	08/23/2018			08/28/2018 21:10	Dale L. Simmons	2019396
	08/23/2018			08/28/2018 17:17	Megan Treadwell	2019393
	08/23/2018			08/28/2018 19:59	Megan Treadwell	2019397
SM 5310 B-00	08/23/2018			08/28/2018 20:12	Megan Treadwell	2019398