

Chemical Analysis Report

CEN-DIST-2019-02-14-01

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

Event Description: **Crane Crk / Eau X2**
Request ID: **RQ-2019-02-11-38**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Michael Linger

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: Colin Wright, Program Administrator

Date Certified: 27-FEB-2019 13:47

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

Case Narrative

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

Results for the following analytical groups are included in this report: 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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Crane Creek @ 200m upstream of RR bridge

Collection Date/Time: 02/13/2019 10:55

Field ID: G5CE0097

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062482	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P358970	
	EPA 300.0	Bromide	1.4		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	74		mg CaCO3/L	P359382	
	SM 2540 D-97	TSS	7	I	mg/L	P359125	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P359389	
2062485	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P359263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P359021	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P359356	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P359003	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P359403	
2062488	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P358963	
2062522	EPA 8321B	2,4-D	0.25		ug/L	P358913	
		Acesulfame K**	0.10	U	ug/L	P358978	
		AMPA**	0.16	I	ug/L	P358978	
		Sucralose**	0.24		ug/L	P358978	
		Acetaminophen**	0.027	I	ug/L	P358913	
		Endothall**	0.25	U	ug/L	P358978	
		Glufosinate**	0.10	U	ug/L	P358978	
		Glyphosate**	0.80		ug/L	P358978	
		Bentazon	0.026		ug/L	P358913	MS
		Carbamazepine**	8.0E-04	U	ug/L	P358913	
		Diuron	0.014		ug/L	P358913	
		Fenuron	0.016	U	ug/L	P358913	
		Imazapyr**	0.13		ug/L	P358913	
		Imidacloprid	0.053		ug/L	P358913	MS
		Linuron	0.0040	U	ug/L	P358913	
		MCPP	0.021		ug/L	P358913	
		Primidone**	0.0040	U	ug/L	P358913	
		Pyraclostrobin**	0.0020	U	ug/L	P358913	
		Triclopyr**	0.0040	U	ug/L	P358913	
		Fluridone**	0.0050		ug/L	P358913	
		Hydrocodone**	0.0020	U	ug/L	P358913	
		Naproxen**	0.0080	U	ug/L	P358913	
		Ibuprofen**	0.020	U	ug/L	P358913	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Eau Gallie River downstream of US Hwy 1 Bridge

Collection Date/Time: 02/13/2019 11:33

Field ID: G5CE0096

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062483	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P358970	
	EPA 300.0	Bromide	12		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	106		mg CaCO3/L	P359386	
	SM 2540 D-97	TSS	6	I	mg/L	P359125	
	SM 4500 F-C-97	Fluoride	0.37		mg F/L	P359395	
2062486	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P359265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P359084	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P359216	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P358984	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P359402	
2062489	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.062		mg P/L	P358965	
2062523	EPA 8321B	Acesulfame K**	0.17	I	ug/L	P358978	
		2,4-D	0.36		ug/L	P358913	
		AMPA**	0.10	UJ	ug/L	P358978	SUR
		Sucralose**	0.37		ug/L	P358978	
		Endothall**	0.25	U	ug/L	P358978	
		Acetaminophen**	0.0080	U	ug/L	P358913	
		Glufosinate**	0.10	UJ	ug/L	P358978	SUR
		Bentazon	0.015		ug/L	P358913	MS
		Glyphosate**	0.10	UJ	ug/L	P358978	SUR
		Carbamazepine**	8.0E-04	U	ug/L	P358913	
		Diuron	0.013		ug/L	P358913	
		Fenuron	0.016	U	ug/L	P358913	
		Imazapyr**	0.28		ug/L	P358913	
		Imidacloprid	0.016		ug/L	P358913	MS
		Linuron	0.0040	U	ug/L	P358913	
		MCP	0.0042	I	ug/L	P358913	
		Primidone**	0.0040	U	ug/L	P358913	
		Pyraclostrobin**	0.0020	U	ug/L	P358913	
		Triclopyr**	0.0040	U	ug/L	P358913	
		Fluridone**	0.0076		ug/L	P358913	
		Hydrocodone**	0.0020	U	ug/L	P358913	
		Naproxen**	0.0080	U	ug/L	P358913	
		Ibuprofen**	0.020	U	ug/L	P358913	

Ref. Method and Comment:

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

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed in re-extraction.

Sample Location: Eau Gallie River @ Boat Ramp

Collection Date/Time: 02/13/2019 11:40

Field ID: G5CE0088

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062484	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P358970	
	EPA 300.0	Bromide	14		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	108		mg CaCO3/L	P359386	
	SM 2540 D-97	TSS	6	I	mg/L	P359125	
	SM 4500 F-C-97	Fluoride	0.40		mg F/L	P359395	
2062487	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P359265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P359084	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P359216	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P358984	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P359402	
2062490	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P358965	
2062524	EPA 8321B	Acesulfame K**	0.15	I	ug/L	P358978	
		2,4-D	0.39		ug/L	P358913	
		AMPA**	0.10	UJ	ug/L	P358978	SUR
		Sucralose**	0.36		ug/L	P358978	
		Endothall**	0.25	U	ug/L	P358978	
		Acetaminophen**	0.0080	U	ug/L	P358913	
		Glufosinate**	0.10	UJ	ug/L	P358978	SUR
		Bentazon	0.012		ug/L	P358913	MS
		Glyphosate**	0.10	UJ	ug/L	P358978	SUR
		Carbamazepine**	8.0E-04	U	ug/L	P358913	
		Diuron	0.015		ug/L	P358913	
		Fenuron	0.016	U	ug/L	P358913	
		Imazapyr**	0.22		ug/L	P358913	
		Imidacloprid	0.015		ug/L	P358913	MS
		Linuron	0.0040	U	ug/L	P358913	
		MCPP	0.0045	I	ug/L	P358913	
		Primidone**	0.0040	U	ug/L	P358913	
		Pyraclostrobin**	0.0020	U	ug/L	P358913	
		Triclopyr**	0.0040	U	ug/L	P358913	
		Fluridone**	0.0073		ug/L	P358913	
		Hydrocodone**	0.0020	U	ug/L	P358913	
		Naproxen**	0.0080	U	ug/L	P358913	
		Ibuprofen**	0.020	U	ug/L	P358913	

Ref. Method and Comment:

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

EPA 8321B: Refer to the narrative for an explanation of QC Codes. Results confirmed in re-extraction.

Sample Location: Crane Creek @ 200m upstream of RR bridge

Collection Date/Time: 02/13/2019 10:58

Field ID: G5CE0097_DUP

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062491	EPA 180.1 Rev. 2.0	Turbidity	7.2		NTU	P358970	
	EPA 300.0	Bromide	1.4		mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	73		mg CaCO3/L	P359382	
	SM 2540 D-97	TSS	8	I	mg/L	P359125	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P359389	
2062492	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P359263	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P359021	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P359356	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P359003	
	SM 5310 B-00	Organic Carbon	7.5		mg C/L	P359403	
2062493	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.073		mg P/L	P358963	
2062525	EPA 8321B	2,4-D	0.21		ug/L	P358913	
		Acesulfame K**	0.10	U	ug/L	P358978	
		AMPA**	0.17	I	ug/L	P358978	
		Sucralose**	0.26		ug/L	P358978	
		Acetaminophen**	0.026	I	ug/L	P358913	
		Endothall**	0.25	U	ug/L	P358978	
		Glufosinate**	0.10	U	ug/L	P358978	
		Glyphosate**	0.71		ug/L	P358978	
		Bentazon	0.027		ug/L	P358913	MS
		Carbamazepine**	8.0E-04	U	ug/L	P358913	
		Diuron	0.014		ug/L	P358913	
		Fenuron	0.016	U	ug/L	P358913	
		Imazapyr**	0.12		ug/L	P358913	
		Imidacloprid	0.053		ug/L	P358913	MS
		Linuron	0.0040	U	ug/L	P358913	
		MCPP	0.020		ug/L	P358913	
		Primidone**	0.0040	U	ug/L	P358913	
		Pyraclostrobin**	0.0020	U	ug/L	P358913	
		Triclopyr**	0.0040	U	ug/L	P358913	
		Fluridone**	0.0052		ug/L	P358913	
		Hydrocodone**	0.0020	U	ug/L	P358913	
		Naproxen**	0.0080	U	ug/L	P358913	
		Ibuprofen**	0.020	U	ug/L	P358913	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Field Blank

Collection Date/Time: 02/13/2019 11:07

Field ID: FB_02132019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062494	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P358970	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P359119	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P359109	
	SM 2540 D-97	TSS	2	U	mg/L	P359125	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P359111	
2062495	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P359267	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P359021	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P359146	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P359004	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P359416	
2062496	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P358963	
2062526	EPA 8321B	2,4-D	0.0020	U	ug/L	P358913	
		Acesulfame K**	0.10	U	ug/L	P358978	
		AMPA**	0.10	U	ug/L	P358978	
		Sucralose**	0.010	U	ug/L	P358978	
		Acetaminophen**	0.0080	U	ug/L	P358913	
		Endothall**	0.25	U	ug/L	P358978	
		Glufosinate**	0.10	U	ug/L	P358978	
		Glyphosate**	0.10	U	ug/L	P358978	
		Bentazon	8.0E-04	U	ug/L	P358913	MS
		Carbamazepine**	8.0E-04	U	ug/L	P358913	
		Diuron	0.0020	U	ug/L	P358913	
		Fenuron	0.016	U	ug/L	P358913	
		Imazapyr**	0.0040	U	ug/L	P358913	
		Imidacloprid	0.0020	U	ug/L	P358913	MS
		Linuron	0.0040	U	ug/L	P358913	
		MCPP	0.0020	U	ug/L	P358913	
		Primidone**	0.0040	U	ug/L	P358913	
		Pyraclostrobin**	0.0020	U	ug/L	P358913	
		Triclopyr**	0.0040	U	ug/L	P358913	
		Fluridone**	8.0E-04	U	ug/L	P358913	
		Hydrocodone**	0.0020	U	ug/L	P358913	
		Naproxen**	0.0080	U	ug/L	P358913	
		Ibuprofen**	0.020	U	ug/L	P358913	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358970

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P359119

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359263

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359021

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359146

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358984

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359003

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359004

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358963

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358965

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

Reference Method: EPA 8321B
Batch ID: P358913

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	8.0E-04	U	ug/L
Hydrocodone	0.0020	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P358913

Component	Result	Code	Units
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
Batch ID: P358978

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
AMPA	0.10	U	ug/L
Endothall	0.25	U	ug/L
Glufosinate	0.10	U	ug/L
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2320 B-97
Batch ID: P359109

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

Reference Method: SM 2320 B-97
Batch ID: P359382

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

Reference Method: SM 2320 B-97
Batch ID: P359386

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

Reference Method: SM 2540 D-97
Batch ID: P359125

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359111

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P359389

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P359395

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P359402

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

Reference Method: SM 5310 B-00
Batch ID: P359403

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

Reference Method: SM 5310 B-00
Batch ID: P359416

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P359119

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359263

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359021

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359146

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P359003

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P359004

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358963

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358965

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

Reference Method: EPA 8321B
 Batch ID: P358913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	84.4		P	40 - 150
Acetaminophen	97.9		P	30 - 150
Bentazon	78.6		P	30 - 150
Carbamazepine	82.4		P	40 - 150
Diuron	73.1		P	40 - 150
Fenuron	110		P	40 - 150
Fluridone	101		P	40 - 150
Hydrocodone	91.1		P	40 - 150
Ibuprofen	75.9		P	40 - 150
Imazapyr	87.4		P	40 - 150
Imidacloprid	95.6		P	40 - 150
Linuron	77.7		P	40 - 150
MCPP	104		P	40 - 150
Naproxen	74.5		P	40 - 150
Primidone	103		P	40 - 150
Pyraclostrobin	82.8		P	40 - 150
Triclopyr	63.4		P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P358978

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
-----------	---------	---------	-----------	----------------

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P358978

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	77.5		P	40 - 150
AMPA	101		P	40 - 150
Endothall	93.7		P	40 - 150
Glufosinate	87.4		P	40 - 150
Glyphosate	91.1		P	40 - 140
Sucralose	125		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P359109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P359382

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P359386

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P359111

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.8		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P359389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P359395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P359403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P359416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P359119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062615	Bromide	94.6	96.9	P/P	90 - 110
2062652	Bromide	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062364	Ammonia-N	98.6	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061996	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062498	Ammonia-N	99.3	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359021

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062498	Kjeldahl Nitrogen	91.1	91.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062542	Kjeldahl Nitrogen	103	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062364	NO2NO3-N	96.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062486	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062702	NO2NO3-N	97.5	97.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062540	Total-P	99.4	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P359003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062365	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P359004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062507	Total-P	106	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062606	O-Phosphate-P	95.1	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062544	O-Phosphate-P	95.1	96.8	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P358913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062555	2,4-D	88.1	92.1	P/P	40 - 150
2062555	Acetaminophen	109	115	P/P	30 - 150
2062555	Bentazon	26.4	29.0	F/F	30 - 150
2062555	Carbamazepine	62.6	64.3	P/P	40 - 150
2062555	Diuron	55.4	53.7	P/P	40 - 150
2062555	Fenuron	78.2	82.7	P/P	40 - 150
2062555	Fluridone	52.8	64.2	P/P	40 - 150
2062555	Hydrocodone	82.0	74.8	P/P	40 - 150
2062555	Ibuprofen	83.1	71.9	P/P	40 - 150
2062555	Imazapyr	68.2	78.4	P/P	40 - 150
2062555	Imidacloprid	151	162	F/F	40 - 150
2062555	Linuron	59.4	61.2	P/P	40 - 150
2062555	MCP	118	122	P/P	40 - 150
2062555	Naproxen	77.1	75.5	P/P	40 - 150
2062555	Primidone	97.6	103	P/P	40 - 150
2062555	Pyraclostrobin	70.0	76.8	P/P	40 - 150
2062555	Triclopyr	65.9	75.0	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P358978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
---------------	-----------	---------	---------	-----------	----------------

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P358978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062398	Acesulfame K	91.0	101	P/P	40 - 150
2062398	AMPA	84.9	81.2	P/P	40 - 150
2062398	Endothall	91.8	101	P/P	40 - 150
2062398	Glufosinate	68.7	67.2	P/P	40 - 150
2062398	Glyphosate	71.1	72.7	P/P	40 - 140
2062398	Sucralose	105	103	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P359111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062601	Fluoride	100	99.2	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P359395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062546	Fluoride	96.7	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062486	Organic Carbon	95.2	94.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P359416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062702	Organic Carbon	96.6	96.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062458	Turbidity	5.89	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P359119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062615	Bromide	1.42	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062364	Ammonia-N	0.183	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061996	Ammonia-N	0.363	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062498	Ammonia-N	0.499	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062498	Kjeldahl Nitrogen	0.459	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062542	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062364	NO2NO3-N	0.213	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062486	NO2NO3-N	0.319	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359356

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062702	NO2NO3-N	0.323	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062540	Total-P	3.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062365	Total-P	0.314	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062507	Total-P	3.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062606	O-Phosphate-P	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062544	O-Phosphate-P	1.77	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P358913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062555	2,4-D	3.93	Spike	P	0 - 30
2062555	Acetaminophen	5.61	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P358913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062555	Bentazon	0.786	Spike	P	0 - 30
2062555	Carbamazepine	2.60	Spike	P	0 - 30
2062555	Diuron	2.94	Spike	P	0 - 30
2062555	Fenuron	5.51	Spike	P	0 - 30
2062555	Fluridone	2.59	Spike	P	0 - 30
2062555	Hydrocodone	9.19	Spike	P	0 - 30
2062555	Ibuprofen	14.4	Spike	P	0 - 30
2062555	Imazapyr	3.74	Spike	P	0 - 30
2062555	Imidacloprid	3.30	Spike	P	0 - 30
2062555	Linuron	2.84	Spike	P	0 - 30
2062555	MCPP	3.52	Spike	P	0 - 30
2062555	Naproxen	2.12	Spike	P	0 - 30
2062555	Primidone	5.09	Spike	P	0 - 30
2062555	Pyraclostrobin	8.33	Spike	P	0 - 30
2062555	Triclopyr	12.9	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P358978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062398	Acesulfame K	10.2	Spike	P	0 - 30
2062398	AMPA	4.45	Spike	P	0 - 30
2062398	Endothall	9.83	Spike	P	0 - 30
2062398	Glufosinate	2.24	Spike	P	0 - 30
2062398	Glyphosate	2.22	Spike	P	0 - 30
2062398	Sucralose	2.24	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P359109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062601	Total Alkalinity	0.559	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P359382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062955	Total Alkalinity	0.238	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P359386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062546	Total Alkalinity	0.674	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
 Batch ID: P359111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062601	Fluoride	0.933	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P359389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062955	Fluoride	0.470	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P359395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062546	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P359402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062486	Organic Carbon	0.858	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P359403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062097	Organic Carbon	0.802	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P359416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062702	Organic Carbon	0.221	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: 2062522
Field Sample ID: G5CE0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	77.3	P	30 - 160
EPA 8321B	Acetaminophen-d4	112	P	30 - 160
EPA 8321B	Carbamazepine-d10	67.7	P	30 - 160
EPA 8321B	Diuron-d6	71.6	P	30 - 160
EPA 8321B	Endothall-d6	78.4	P	40 - 160
EPA 8321B	Endothall-d6	78.4	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	53.3	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	53.3	P	40 - 160
EPA 8321B	Ibuprofen-d3	67.4	P	30 - 160
EPA 8321B	Primidone-d5	95.5	P	30 - 160
EPA 8321B	Sucralose-d6	110	P	40 - 160
EPA 8321B	Sucralose-d6	110	P	40 - 160

Lab Sample ID: 2062523
Field Sample ID: G5CE0096

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	79.2	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	66.2	P	30 - 160
EPA 8321B	Diuron-d6	70.8	P	30 - 160
EPA 8321B	Endothall-d6	88.0	P	40 - 160
EPA 8321B	Endothall-d6	88.0	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	6.98	F	40 - 160
EPA 8321B	Glyphosate 13C 15N	6.98	F	40 - 160
EPA 8321B	Ibuprofen-d3	73.0	P	30 - 160
EPA 8321B	Primidone-d5	105	P	30 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160

Lab Sample ID: 2062524
Field Sample ID: G5CE0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	90.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	107	P	30 - 160
EPA 8321B	Carbamazepine-d10	67.8	P	30 - 160
EPA 8321B	Diuron-d6	71.5	P	30 - 160
EPA 8321B	Endothall-d6	82.4	P	40 - 160
EPA 8321B	Endothall-d6	82.4	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	4.58	F	40 - 160
EPA 8321B	Glyphosate 13C 15N	4.58	F	40 - 160
EPA 8321B	Ibuprofen-d3	76.5	P	30 - 160
EPA 8321B	Primidone-d5	98.6	P	30 - 160
EPA 8321B	Sucralose-d6	111	P	40 - 160
EPA 8321B	Sucralose-d6	111	P	40 - 160

Lab Sample ID: 2062525
Field Sample ID: G5CE0097_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	66.8	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 2062525
Field Sample ID: G5CE0097_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	103	P	30 - 160
EPA 8321B	Carbamazepine-d10	70.4	P	30 - 160
EPA 8321B	Diuron-d6	70.3	P	30 - 160
EPA 8321B	Endothall-d6	108	P	40 - 160
EPA 8321B	Endothall-d6	108	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	47.6	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	47.6	P	40 - 160
EPA 8321B	Ibuprofen-d3	68.1	P	30 - 160
EPA 8321B	Primidone-d5	115	P	30 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160
EPA 8321B	Sucralose-d6	114	P	40 - 160

Lab Sample ID: 2062526
Field Sample ID: FB_02132019

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	58.1	P	30 - 160
EPA 8321B	Acetaminophen-d4	88.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	79.0	P	30 - 160
EPA 8321B	Diuron-d6	83.5	P	30 - 160
EPA 8321B	Endothall-d6	94.0	P	40 - 160
EPA 8321B	Endothall-d6	94.0	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	117	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	117	P	40 - 160
EPA 8321B	Ibuprofen-d3	66.7	P	30 - 160
EPA 8321B	Primidone-d5	102	P	30 - 160
EPA 8321B	Sucralose-d6	113	P	40 - 160
EPA 8321B	Sucralose-d6	113	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89426

Included Lab Sample IDs: 2062488, 2062489, 2062490, 2062493, 2062496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.4	P/P	90 - 110
O-Phosphate-P	99.0	98.0	P/P	90 - 110
O-Phosphate-P	99.0	99.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89430

Included Lab Sample IDs: 2062482, 2062483, 2062484, 2062491, 2062494

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

Reference Method: EPA 300.0

Run ID: A89435

Included Lab Sample IDs: 2062482, 2062483, 2062484, 2062491, 2062494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	96.6	97.6	P/P	90 - 110
Bromide	97.4	96.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89461

Included Lab Sample IDs: 2062522, 2062523, 2062524, 2062525, 2062526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	101	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A89464

Included Lab Sample IDs: 2062522, 2062523, 2062524, 2062525, 2062526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	75.6	75.5	P/P	60 - 160
Endothall	104	101	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89483

Included Lab Sample IDs: 2062485, 2062486, 2062487, 2062492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110
Total-P	99.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89484

Included Lab Sample IDs: 2062495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89486

Included Lab Sample IDs: 2062485, 2062492, 2062495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.6	P/P	90 - 110
Kjeldahl Nitrogen	99.6	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89489

Included Lab Sample IDs: 2062494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89489

Included Lab Sample IDs: 2062494

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89494

Included Lab Sample IDs: 2062486, 2062487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89498

Included Lab Sample IDs: 2062495

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

Reference Method: EPA 8321B

Run ID: A89502

Included Lab Sample IDs: 2062522, 2062523, 2062524, 2062525, 2062526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	67.4	94.4	P/P	50 - 150
Acetaminophen	107	113	P/P	60 - 160
Bentazon	88.0	84.9	P/P	50 - 160
Carbamazepine	99.5	101	P/P	60 - 150
Diuron	103	102	P/P	60 - 150
Fenuron	107	100	P/P	60 - 150
Fluridone	104	105	P/P	60 - 160
Hydrocodone	96.2	99.2	P/P	60 - 150
Ibuprofen	76.3	90.8	P/P	50 - 160
Imazapyr	97.6	84.8	P/P	50 - 150
Imidacloprid	86.1	101	P/P	60 - 150
Linuron	98.6	106	P/P	60 - 150
MCPP	89.7	88.5	P/P	50 - 150
Naproxen	90.0	66.7	P/P	50 - 160
Primidone	108	105	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A89502

Included Lab Sample IDs: 2062522, 2062523, 2062524, 2062525, 2062526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	116	116	P/P	60 - 150
Triclopyr	82.0	76.0	P/P	50 - 150

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89525

Included Lab Sample IDs: 2062486, 2062487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89542

Included Lab Sample IDs: 2062485, 2062486, 2062487, 2062492, 2062495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	102	102	P/P	90 - 110
Ammonia-N	99.8	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A89576

Included Lab Sample IDs: 2062522, 2062523, 2062524, 2062525, 2062526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	108	111	P/P	60 - 160
Glufosinate	107	118	P/P	60 - 160
Glyphosate	108	115	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89586

Included Lab Sample IDs: 2062485, 2062492

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

Reference Method: SM 2320 B-97

Run ID: A89593

Included Lab Sample IDs: 2062482, 2062483, 2062484, 2062491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.6	P/P	90 - 110
Total Alkalinity	102	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89593

Included Lab Sample IDs: 2062482, 2062483, 2062484, 2062491

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.6	P/P	90 - 110
Fluoride	99.0	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A89596

Included Lab Sample IDs: 2062485, 2062486, 2062487, 2062492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	90.4	92.6	P/P	90 - 110
Organic Carbon	92.6	96.6	P/P	90 - 110
Organic Carbon	96.2	98.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89603

Included Lab Sample IDs: 2062495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.5	93.4	P/P	90 - 110

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						5.89	
EPA 300.0	Bromide	97.9	94.6	96.9	95.4			1.42
EPA 350.1 Rev. 2.0	Ammonia-N	99.3	98.6	98.9				0.183
	Ammonia-N	100	102	103				0.363
	Ammonia-N	106	99.3	100				0.499
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	91.1	91.9				0.459
	Kjeldahl Nitrogen	107	103	100				2.72
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	96.5					0.213
	NO2NO3-N	100	100	100				0.319
	NO2NO3-N	99.0	97.5	97.0				0.323
EPA 365.1 Rev. 2.0	Total-P	98.9	99.4	103				3.85
	Total-P	105	101	101				0.314
	Total-P	105	106	102				3.22
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	95.1	96.9				1.88
	O-Phosphate-P	102	95.1	96.8				1.77
EPA 8321B	2,4-D	84.4	88.1	92.1				3.93
	Acesulfame K	77.5	91.0	101				10.2
	Acetaminophen	97.9	109	115				5.61
	AMPA	101	84.9	81.2				4.45
	Bentazon	78.6	26.4	29.0				0.786
	Carbamazepine	82.4	62.6	64.3				2.60
	Diuron	73.1	55.4	53.7				2.94
	Endothall	93.7	91.8	101				9.83
	Fenuron	110	78.2	82.7				5.51
	Fluridone	101	52.8	64.2				2.59
	Glufosinate	87.4	68.7	67.2				2.24
	Glyphosate	91.1	71.1	72.7				2.22
	Hydrocodone	91.1	82.0	74.8				9.19
	Ibuprofen	75.9	83.1	71.9				14.4
	Imazapyr	87.4	68.2	78.4				3.74
	Imidacloprid	95.6	151	162				3.30
	Linuron	77.7	59.4	61.2				2.84
	MCPP	104	118	122				3.52
	Naproxen	74.5	77.1	75.5				2.12
	Primidone	103	97.6	103				5.09
	Pyraclostrobin	82.8	70.0	76.8				8.33
	Sucralose	125	105	103				2.24
	Triclopyr	63.4	65.9	75.0				12.9
SM 2320 B-97	Total Alkalinity	102					0.559	
	Total Alkalinity	102					0.238	
	Total Alkalinity	101					0.674	
SM 4500 F-C-97	Fluoride	99.8	100	99.2				0.933
	Fluoride	96.9						0.470
	Fluoride	96.9	96.7	96.7				0.0
SM 5310 B-00	Organic Carbon	98.4	95.2	94.0				0.858
	Organic Carbon	98.2						0.802
	Organic Carbon	96.2	96.6	96.4				0.221

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2062482, 2062483, 2062484, 2062491, 2062494

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 / E31780	Bromide in aqueous matrices	2062482, 2062483, 2062484, 2062491, 2062494
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2062485, 2062486, 2062487, 2062492, 2062495
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2062485, 2062486, 2062487, 2062492, 2062495
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2062485, 2062486, 2062487, 2062492, 2062495
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2062485, 2062486, 2062487, 2062492, 2062495
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2062488, 2062489, 2062490, 2062493, 2062496
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2062522, 2062523, 2062524, 2062525, 2062526
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2062522, 2062523, 2062524, 2062525, 2062526
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2062482, 2062483, 2062484, 2062491, 2062494
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2062482, 2062483, 2062484, 2062491, 2062494
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2062482, 2062483, 2062484, 2062491, 2062494
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2062485, 2062486, 2062487, 2062492, 2062495

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	02/14/2019			02/14/2019 17:36	Adrian Shelby	2062482, 2062483, 2062484, 2062491, 2062494
EPA 300.0	02/14/2019			02/15/2019 16:30	Lipi Saha	2062482
	02/14/2019			02/15/2019 16:47	Lipi Saha	2062491
	02/14/2019			02/15/2019 17:04	Lipi Saha	2062483
	02/14/2019			02/15/2019 17:55	Lipi Saha	2062484
	02/14/2019			02/15/2019 18:12	Lipi Saha	2062494
EPA 350.1 Rev. 2.0	02/14/2019			02/20/2019 11:19	Ping Hua	2062492
	02/14/2019			02/20/2019 12:16	Ping Hua	2062486
	02/14/2019			02/20/2019 12:18	Ping Hua	2062487
	02/14/2019			02/20/2019 13:21	Ping Hua	2062495
	02/14/2019			02/20/2019 13:33	Ping Hua	2062485
EPA 351.2 Rev. 2.0	02/14/2019	02/15/2019 12:45	Adrian Shelby	02/18/2019 15:32	Joseph Suarez	2062485
	02/14/2019	02/15/2019 12:45	Adrian Shelby	02/18/2019 15:34	Joseph Suarez	2062492
	02/14/2019	02/15/2019 12:45	Adrian Shelby	02/18/2019 15:38	Joseph Suarez	2062495
	02/14/2019	02/18/2019 13:50	Adrian Shelby	02/19/2019 10:11	Joseph Suarez	2062486
	02/14/2019	02/18/2019 13:50	Adrian Shelby	02/19/2019 10:13	Joseph Suarez	2062487
EPA 353.2 Rev. 2.0	02/14/2019			02/19/2019 10:51	Beverly Y. Sanders	2062495
	02/14/2019			02/20/2019 10:22	Beverly Y. Sanders	2062486
	02/14/2019			02/20/2019 10:28	Beverly Y. Sanders	2062487
	02/14/2019			02/22/2019 10:01	Beverly Y. Sanders	2062485
	02/14/2019			02/22/2019 10:03	Beverly Y. Sanders	2062492
EPA 365.1 Rev. 2.0	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 14:29	Rosalyn Ballman	2062486
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 14:30	Rosalyn Ballman	2062487
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 14:51	Rosalyn Ballman	2062485
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 14:52	Rosalyn Ballman	2062492
	02/14/2019	02/15/2019 13:25	Sima Feizi	02/18/2019 16:23	Rosalyn Ballman	2062495
EPA 365.1 Rev. 2.0 dissolved	02/14/2019			02/14/2019 15:13	Jhamieka S. Greenwood	2062496
	02/14/2019			02/14/2019 15:14	Jhamieka S. Greenwood	2062488
	02/14/2019			02/14/2019 15:15	Jhamieka S. Greenwood	2062493
	02/14/2019			02/14/2019 15:41	Jhamieka S. Greenwood	2062489
	02/14/2019			02/14/2019 15:47	Jhamieka S. Greenwood	2062490
EPA 8321B	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/16/2019 19:26	Mohammad Ghaffari	2062522
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/16/2019 19:40	Mohammad Ghaffari	2062523
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/16/2019 19:54	Mohammad Ghaffari	2062524
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/16/2019 20:07	Mohammad Ghaffari	2062525
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/16/2019 20:21	Mohammad Ghaffari	2062526
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 12:47	Mohammad Ghaffari	2062522
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 12:58	Mohammad Ghaffari	2062523
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 13:08	Mohammad Ghaffari	2062524

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 13:19	Mohammad Ghaffari	2062525
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 13:30	Mohammad Ghaffari	2062526
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 14:30	Mohammad Ghaffari	2062522
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 14:44	Mohammad Ghaffari	2062523
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 14:58	Mohammad Ghaffari	2062524
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 15:12	Mohammad Ghaffari	2062525
	02/14/2019	02/15/2019 17:30	Mohammad Ghaffari	02/17/2019 15:26	Mohammad Ghaffari	2062526
	02/14/2019	02/18/2019 10:00	Hoor Shaik	02/21/2019 10:20	Juyoung Kim	2062522
	02/14/2019	02/18/2019 10:00	Hoor Shaik	02/21/2019 10:55	Juyoung Kim	2062523
	02/14/2019	02/18/2019 10:00	Hoor Shaik	02/21/2019 11:29	Juyoung Kim	2062524
	02/14/2019	02/18/2019 10:00	Hoor Shaik	02/21/2019 12:04	Juyoung Kim	2062525
	02/14/2019	02/18/2019 10:00	Hoor Shaik	02/21/2019 12:39	Juyoung Kim	2062526
	02/14/2019			02/19/2019 04:08	Dale L. Simmons	2062494
SM 2320 B-97	02/14/2019			02/20/2019 23:45	Dale L. Simmons	2062482
	02/14/2019			02/20/2019 23:57	Dale L. Simmons	2062491
	02/14/2019			02/21/2019 12:38	Dale L. Simmons	2062483
	02/14/2019			02/21/2019 12:52	Dale L. Simmons	2062484
SM 2540 D-97	02/14/2019			02/15/2019 16:00	Mariam Hanna	2062482, 2062483, 2062484, 2062491, 2062494
SM 4500 F-C-97	02/14/2019			02/19/2019 04:08	Dale L. Simmons	2062494
	02/14/2019			02/20/2019 23:45	Dale L. Simmons	2062482
	02/14/2019			02/20/2019 23:57	Dale L. Simmons	2062491
	02/14/2019			02/21/2019 10:08	Dale L. Simmons	2062483
	02/14/2019			02/21/2019 10:12	Dale L. Simmons	2062484
SM 5310 B-00	02/14/2019			02/20/2019 06:09	Julia Storbeck	2062486
	02/14/2019			02/20/2019 08:57	Julia Storbeck	2062487
	02/14/2019			02/21/2019 04:27	Julia Storbeck	2062485
	02/14/2019			02/21/2019 04:43	Julia Storbeck	2062492
	02/14/2019			02/24/2019 03:56	Julia Storbeck	2062495