

Chemical Analysis Report

TLH-ROC-2019-04-17-01

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

Event Description: **Run 7**
Request ID: **RQ-2019-04-15-50**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Colin Wright, Program Administrator

Date Certified: 06-MAY-2019 12:09

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

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: TENMILE CREEK @ CR274

Collection Date/Time: 04/17/2019 12:25

Field ID: G2TLHR0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078977	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P362375	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P362821	
		Sulfate	0.71		mg SO4/L	P362824	
	SM 2120 B	Color (true)	410		PCU	P362392	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	57		mg/L	P363047	
	SM 2540 D-97	TSS	4	I	mg/L	P362916	
2078978	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P362952	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P362726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P362839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P362768	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P362617	
2078979	SM 5310 B-00	Organic Carbon	21		mg C/L	P362590	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362369	
2078995	EPA 8321B	2,4-D	0.0020	U	ug/L	P362252	
		Acesulfame K**	0.10	U	ug/L	P362469	
		AMPA**	0.10	U	ug/L	P362469	
		Sucralose**	0.055		ug/L	P362469	
		Acetaminophen**	0.0080	U	ug/L	P362252	
		Endothall**	0.25	U	ug/L	P362469	
		Glufosinate**	0.10	U	ug/L	P362469	
		Bentazon	8.0E-04	U	ug/L	P362252	
		Glyphosate**	0.10	U	ug/L	P362469	
		Carbamazepine**	8.0E-04	U	ug/L	P362252	
		Diuron	0.0020	U	ug/L	P362252	
		Fenuron	0.016	U	ug/L	P362252	
		Fluridone**	8.0E-04	U	ug/L	P362252	MS
		Imazapyr**	0.0040	U	ug/L	P362252	
		Hydrocodone**	0.0020	U	ug/L	P362252	
		Ibuprofen**	0.020	U	ug/L	P362252	
		Imidacloprid	0.0020	U	ug/L	P362252	MS
		Linuron	0.0040	U	ug/L	P362252	
		MCPP	0.0020	U	ug/L	P362252	
		Naproxen**	0.0080	U	ug/L	P362252	
		Primidone**	0.0040	U	ug/L	P362252	
		Pyraclostrobin**	0.0020	U	ug/L	P362252	
		Triclopyr**	0.0040	U	ug/L	P362252	

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: CHIPOLA RIVER

Collection Date/Time: 04/17/2019 12:55

Field ID: G2TLHR0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078965	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P362375	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P362821	
		Sulfate	1.5		mg SO4/L	P362824	
	SM 2120 B	Color (true)	26		PCU	P362389	
	SM 2320 B-97	Total Alkalinity	103		mg CaCO3/L	P362947	
	SM 2540 C-97	TDS	125		mg/L	P363047	
	SM 2540 D-97	TSS	2	I	mg/L	P362916	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P362951	
2078968	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P362726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P362705	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P362767	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P362617	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P362590	
2078971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P362368	

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: APALACHICOLA RIVER @ NEAL LANDING

Collection Date/Time: 04/17/2019 13:30

Field ID: G2TLHR0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078980	EPA 180.1 Rev. 2.0	Turbidity	9.4	A	NTU	P362375	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P362821	
		Sulfate	5.2		mg SO4/L	P362824	
		Color (true)	22		PCU	P362392	
	SM 2320 B-97	Total Alkalinity	38		mg CaCO3/L	P362948	
	SM 2540 C-97	TDS	66		mg/L	P363047	
	SM 2540 D-97	TSS	9	I	mg/L	P362916	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P362952	
2078981	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P362726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P362839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.65		mg N/L	P362768	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P362618	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P362590	
2078982	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P362370	
2078996	EPA 200.7 Rev. 4.4	Barium	19.6		ug/L	P362614	
		Calcium	14.0		mg/L	P362614	
		Iron	580		ug/L	P362614	
		Magnesium	1.77		mg/L	P362614	
		Potassium	1.5		mg/L	P362614	
		Sodium	5.2		mg/L	P362614	
		Zinc	5.0	U	ug/L	P362614	
	EPA 200.8 Rev. 5.4	Aluminum	203		ug/L	P362614	
		Antimony	0.071	I	ug/L	P362614	
		Arsenic	0.32		ug/L	P362614	
		Boron**	14.5		ug/L	P362614	
		Cadmium	0.020	U	ug/L	P362614	
		Chromium	0.42	I	ug/L	P362614	
		Copper	0.66	I	ug/L	P362614	
		Lead	0.29	I	ug/L	P362614	
		Nickel	0.50	U	ug/L	P362614	
		Silver	0.010	U	ug/L	P362614	
		Thallium	0.10	U	ug/L	P362614	

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: RUSS MILL CREEK @ UNION RD

Collection Date/Time: 04/17/2019 10:05

Field ID: G2TLHR0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078966	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P362375	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P362821	
		Sulfate	1.9		mg SO4/L	P362824	
	SM 2120 B	Color (true)	26		PCU	P362389	
	SM 2320 B-97	Total Alkalinity	113		mg CaCO3/L	P362947	
	SM 2540 C-97	TDS	146		mg/L	P363047	
	SM 2540 D-97	TSS	8	I	mg/L	P362916	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P362951	
2078969	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P362726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P362705	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P362767	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P362617	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P362590	
2078972	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P362368	

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: BLUE HOLE SPRING @ CAVERN

Collection Date/Time: 04/17/2019 10:55

Field ID: G2TLHR0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078974	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P362375	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P362821	
		Sulfate	1.0		mg SO4/L	P362824	
	SM 2120 B	Color (true)	14	A	PCU	P362392	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P362947	
	SM 2540 C-97	TDS	143		mg/L	P363047	
	SM 2540 D-97	TSS	2	I	mg/L	P362916	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P362951	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P362726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P362705	
2078975	EPA 353.2 Rev. 2.0	NO2NO3-N	0.52		mg N/L	P362768	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P362617	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P362590	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.013		mg P/L	P362369	
	dissolved						
2078976	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.013		mg P/L	P362369	

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: CHIPOLA RIVER @ MAGNOLIA RD

Collection Date/Time: 04/17/2019 11:45

Field ID: G2TLHR0016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2078967	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P362375	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P362821	
		Sulfate	1.3		mg SO4/L	P362824	
	SM 2120 B	Color (true)	17		PCU	P362392	
	SM 2320 B-97	Total Alkalinity	112		mg CaCO3/L	P362947	
	SM 2540 C-97	TDS	146	A	mg/L	P363047	
	SM 2540 D-97	TSS	7	IA	mg/L	P362916	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P362951	
2078970	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P362726	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P362705	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.4		mg N/L	P362767	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P362617	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P362590	
2078973	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P362369	

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: P362375

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362614

Component	Result	Code	Units
Barium	1.0	U	ug/L
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: P362614

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362821

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362824

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362726

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362705

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362705

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362767

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362768

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362617

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362618

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362368

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362369

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362370

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
 Batch ID: P362252

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
Triclopyr	0.0040	U	ug/L

Reference Method: EPA 8321B
 Batch ID: P362469

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 2120 B
 Batch ID: P362389

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
 Batch ID: P362392

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
 Batch ID: P362947

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

Reference Method: SM 2320 B-97
 Batch ID: P362948

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P363047

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362916

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362951

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362590

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: P362614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	96.1		P	85 - 115
Calcium	106		P	85 - 115
Iron	103		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	103		P	85 - 115
Sodium	105		P	85 - 115
Zinc	97.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362614

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	93.1		P	85 - 115
Antimony	91.8		P	85 - 115
Arsenic	95.2		P	85 - 115
Boron	94.6		P	85 - 115
Cadmium	95.9		P	85 - 115
Chromium	87.7		P	85 - 115
Copper	93.1		P	85 - 115
Lead	96.5		P	85 - 115
Nickel	93.3		P	85 - 115
Silver	113		P	85 - 115
Thallium	90.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362821

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362726

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362705

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P362839

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P362767

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P362768

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P362617

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P362618

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362368

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362369

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362370

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

Reference Method: EPA 8321B
 Batch ID: P362252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	66.6		P	40 - 150
Acetaminophen	88.0		P	30 - 150
Bentazon	99.8		P	30 - 150
Carbamazepine	81.6		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P362252

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	79.2		P	40 - 150
Fenuron	103		P	40 - 150
Fluridone	110		P	40 - 150
Hydrocodone	74.3		P	40 - 150
Ibuprofen	79.5		P	40 - 150
Imazapyr	78.4		P	40 - 150
Imidacloprid	89.3		P	40 - 150
Linuron	79.3		P	40 - 150
MCPP	80.4		P	40 - 150
Naproxen	52.3		P	40 - 150
Primidone	81.1		P	40 - 150
Pyraclostrobin	90.5		P	40 - 150
Triclopyr	56.2		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P362469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	106		P	40 - 150
AMPA	116		P	40 - 150
Endothall	114		P	40 - 150
Glufosinate	119		P	40 - 150
Glyphosate	118		P	40 - 140
Sucralose	107		P	40 - 150

Reference Method: SM 2120 B

Batch ID: P362389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2120 B

Batch ID: P362392

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	104		P	85 - 115

Reference Method: SM 2320 B-97

Batch ID: P362947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 2320 B-97

Batch ID: P362948

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P362951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P362952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078912	Barium	95.3		P	80 - 120
2078912	Calcium	98.6		P	80 - 120
2078912	Iron	105		P	80 - 120
2078912	Magnesium	100		P	80 - 120
2078912	Potassium	101		P	80 - 120
2078912	Sodium	99.0		P	80 - 120
2078912	Zinc	97.1		P	80 - 120
2079154	Barium	96.7	97.5	P/P	80 - 120
2079154	Calcium	107	105	P/P	80 - 120
2079154	Iron	106	105	P/P	80 - 120
2079154	Magnesium	112	110	P/P	80 - 120
2079154	Potassium	108	108	P/P	80 - 120
2079154	Sodium	102	102	P/P	80 - 120
2079154	Zinc	98.1	99.4	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078912	Aluminum	90.8		P	80 - 120
2078912	Antimony	91.8		P	80 - 120
2078912	Arsenic	94.4		P	80 - 120
2078912	Boron	95.9		P	80 - 120
2078912	Cadmium	95.1		P	80 - 120
2078912	Chromium	87.5		P	80 - 120
2078912	Copper	89.4		P	80 - 120
2078912	Lead	96.4		P	80 - 120
2078912	Nickel	90.6		P	80 - 120
2078912	Silver	112		P	80 - 120
2078912	Thallium	112		P	80 - 120
2079154	Aluminum	91.0	89.6	P/P	80 - 120
2079154	Antimony	90.2	89.8	P/P	80 - 120
2079154	Arsenic	92.6	92.6	P/P	80 - 120
2079154	Boron	95.7	94.3	P/P	80 - 120
2079154	Cadmium	94.0	92.7	P/P	80 - 120
2079154	Chromium	89.2	88.4	P/P	80 - 120
2079154	Copper	93.2	93.2	P/P	80 - 120
2079154	Lead	96.8	96.4	P/P	80 - 120
2079154	Nickel	93.1	93.1	P/P	80 - 120
2079154	Silver	110	112	P/P	80 - 120
2079154	Thallium	109	111	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078783	Chloride	96.5		P	90 - 110
2078980	Chloride	99.2		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078783	Sulfate	96.5		P	90 - 110
2078980	Sulfate	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362726

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078969	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078901	Kjeldahl Nitrogen	96.0	91.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078981	Kjeldahl Nitrogen	95.1	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078784	NO2NO3-N	100	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079007	NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078900	Total-P	98.4	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079061	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078747	O-Phosphate-P	99.8	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078858	O-Phosphate-P	96.6	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078982	O-Phosphate-P	95.6	98.7	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P362252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078237	2,4-D	86.5	87.4	P/P	40 - 150
2078237	Acetaminophen	77.5	83.3	P/P	30 - 150
2078237	Bentazon	67.3	66.2	P/P	30 - 150
2078237	Carbamazepine	86.6	94.4	P/P	40 - 150
2078237	Diuron	72.2	70.7	P/P	40 - 150
2078237	Fenuron	96.8	109	P/P	40 - 150
2078237	Fluridone	176	72.4	F/P	40 - 150
2078237	Hydrocodone	93.7	94.9	P/P	40 - 150
2078237	Ibuprofen	65.0	61.0	P/P	40 - 150
2078237	Imazapyr	97.0	55.2	P/P	40 - 150
2078237	Imidacloprid	159	170	F/F	40 - 150
2078237	Linuron	70.9	72.5	P/P	40 - 150
2078237	MCP	101	105	P/P	40 - 150
2078237	Naproxen	69.9	56.9	P/P	40 - 150
2078237	Primidone	67.6	64.2	P/P	40 - 150
2078237	Pyraclostrobin	74.6	80.8	P/P	40 - 150
2078237	Triclopyr	61.2	56.0	P/P	40 - 150

Reference Method: EPA 8321B
 Batch ID: P362469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078457	Acesulfame K	102	86.1	P/P	40 - 150
2078457	AMPA	147	145	P/P	40 - 150
2078457	Endothall	103	105	P/P	40 - 150
2078457	Glufosinate	112	123	P/P	40 - 150
2078457	Glyphosate	113	114	P/P	40 - 140
2078457	Sucralose	76.2	93.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
 Batch ID: P362951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078751	Fluoride	97.3	97.3	P/P	89 - 106

Reference Method: SM 4500 F-C-97
 Batch ID: P362952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079060	Fluoride	98.5	98.5	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P362590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078900	Organic Carbon	97.1	97.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078980	Turbidity	0.532	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079154	Barium	0.856	Spike	P	0 - 20
2079154	Calcium	1.79	Spike	P	0 - 20
2079154	Iron	1.16	Spike	P	0 - 20
2079154	Magnesium	1.57	Spike	P	0 - 20
2079154	Potassium	0.811	Spike	P	0 - 20
2079154	Sodium	0.138	Spike	P	0 - 20
2079154	Zinc	1.25	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079154	Aluminum	1.37	Spike	P	0 - 20
2079154	Antimony	0.522	Spike	P	0 - 20
2079154	Arsenic	0.0398	Spike	P	0 - 20
2079154	Boron	1.38	Spike	P	0 - 20
2079154	Cadmium	1.49	Spike	P	0 - 20
2079154	Chromium	0.876	Spike	P	0 - 20
2079154	Copper	0.0551	Spike	P	0 - 20
2079154	Lead	0.408	Spike	P	0 - 20
2079154	Nickel	0.0864	Spike	P	0 - 20
2079154	Silver	1.17	Spike	P	0 - 20
2079154	Thallium	1.91	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078783	Chloride	0.00717	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078783	Sulfate	0.202	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362726

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078969	Ammonia-N	1.10	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078901	Kjeldahl Nitrogen	3.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078981	Kjeldahl Nitrogen	2.22	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078784	NO2NO3-N	1.13	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079007	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078900	Total-P	1.58	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079061	Total-P	2.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078747	O-Phosphate-P	0.699	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078858	O-Phosphate-P	1.59	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078982	O-Phosphate-P	3.01	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P362252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078237	2,4-D	0.554	Spike	P	0 - 30
2078237	Acetaminophen	7.21	Spike	P	0 - 30
2078237	Bentazon	0.814	Spike	P	0 - 30
2078237	Carbamazepine	8.15	Spike	P	0 - 30
2078237	Diuron	2.18	Spike	P	0 - 30
2078237	Fenuron	12.0	Spike	P	0 - 30
2078237	Fluridone	20.4	Spike	P	0 - 30
2078237	Hydrocodone	1.28	Spike	P	0 - 30
2078237	Ibuprofen	6.24	Spike	P	0 - 30
2078237	Imazapyr	24.0	Spike	P	0 - 30
2078237	Imidacloprid	6.54	Spike	P	0 - 30
2078237	Linuron	2.32	Spike	P	0 - 30
2078237	MCPP	4.19	Spike	P	0 - 30
2078237	Naproxen	20.6	Spike	P	0 - 30
2078237	Primidone	4.56	Spike	P	0 - 30
2078237	Pyraclostrobin	8.08	Spike	P	0 - 30
2078237	Triclopyr	8.83	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P362469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078457	Acesulfame K	16.8	Spike	P	0 - 30
2078457	AMPA	1.17	Spike	P	0 - 30
2078457	Endothall	1.13	Spike	P	0 - 30
2078457	Glufosinate	9.39	Spike	P	0 - 30
2078457	Glyphosate	1.08	Spike	P	0 - 30
2078457	Sucralose	20.7	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P362389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078751	Color (true)	0.861	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P362392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078974	Color (true)	6.46	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P362947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078751	Total Alkalinity	0.124	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
 Batch ID: P362948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Total Alkalinity	0.265	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P363047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078967	TDS	5.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P362951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078751	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P362952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079060	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P362590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078900	Organic Carbon	0.250	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: 2078995

Field Sample ID: G2TLHR0001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	71.4	P	30 - 160
EPA 8321B	Acetaminophen-d4	80.8	P	30 - 160
EPA 8321B	Carbamazepine-d10	90.0	P	30 - 160
EPA 8321B	Diuron-d6	69.8	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Endothall-d6	102	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	101	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	101	P	30 - 160
EPA 8321B	Ibuprofen-d3	69.1	P	30 - 160
EPA 8321B	Primidone-d5	67.7	P	30 - 160
EPA 8321B	Sucralose-d6	93.8	P	30 - 160
EPA 8321B	Sucralose-d6	93.8	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A90794

Included Lab Sample IDs: 2078971, 2078972, 2078973, 2078976, 2078979, 2078982

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	98.2	P/P	90 - 110
O-Phosphate-P	99.9	96.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90795

Included Lab Sample IDs: 2078965, 2078966, 2078967, 2078974, 2078977, 2078980

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

Reference Method: SM 2120 B

Run ID: A90804

Included Lab Sample IDs: 2078965, 2078966, 2078967, 2078974, 2078977, 2078980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115
Color (true)	102	103	P/P	85 - 115
Color (true)	102	102	P/P	85 - 115

Reference Method: EPA 8321B

Run ID: A90848

Included Lab Sample IDs: 2078995

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	89.9	98.0	P/P	50 - 150
Acetaminophen	84.5	93.3	P/P	60 - 160
Bentazon	113	111	P/P	50 - 160
Carbamazepine	103	102	P/P	60 - 150
Diuron	100	99.5	P/P	60 - 150
Fenuron	100	104	P/P	60 - 150
Fluridone	62.6	98.6	P/P	60 - 160
Hydrocodone	91.3	88.6	P/P	60 - 150
Ibuprofen	111	125	P/P	50 - 160
Imazapyr	102	99.2	P/P	50 - 150
Imidacloprid	87.8	93.8	P/P	60 - 150
Linuron	93.3	93.2	P/P	60 - 150
MCPP	92.7	85.1	P/P	50 - 150
Naproxen	82.0	83.1	P/P	50 - 160
Primidone	89.2	79.1	P/P	60 - 150
Pyraclostrobin	136	133	P/P	60 - 150
Triclopyr	101	99.2	P/P	50 - 150

Reference Method: SM 5310 B-00

Run ID: A90876

Included Lab Sample IDs: 2078968, 2078969, 2078970, 2078975, 2078978, 2078981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	98.8	P/P	90 - 110
Organic Carbon	98.8	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A90878
Included Lab Sample IDs: 2078995

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	118	140	P/P	60 - 160
Endothall	107	117	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A90917
Included Lab Sample IDs: 2078995

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	94.0	117	P/P	60 - 160
Glufosinate	104	121	P/P	60 - 160
Glyphosate	105	120	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A90934
Included Lab Sample IDs: 2078968, 2078969, 2078970, 2078975, 2078978, 2078981

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A90949
Included Lab Sample IDs: 2078968, 2078969, 2078970, 2078975, 2078978, 2078981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A90961
Included Lab Sample IDs: 2078965, 2078966, 2078967, 2078974, 2078977, 2078980

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A90968
Included Lab Sample IDs: 2078968, 2078969, 2078970, 2078975, 2078978, 2078981

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A90983
Included Lab Sample IDs: 2078996

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A90983

Included Lab Sample IDs: 2078996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	101	P/P	90 - 110
Iron	100	102	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Potassium	98.2	97.6	P/P	90 - 110
Sodium	98.8	100	P/P	90 - 110
Zinc	101	102	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A90990

Included Lab Sample IDs: 2078995

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	96.5	99.2	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90992

Included Lab Sample IDs: 2078968, 2078969, 2078970, 2078975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	93.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A90993

Included Lab Sample IDs: 2078996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	96.1	95.7	P/P	90 - 110
Antimony	94.0	91.9	P/P	90 - 110
Arsenic	96.0	94.7	P/P	90 - 110
Boron	96.1	101	P/P	90 - 110
Cadmium	95.9	95.0	P/P	90 - 110
Chromium	95.2	97.1	P/P	90 - 110
Copper	96.1	95.2	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Nickel	95.0	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91020

Included Lab Sample IDs: 2078978, 2078981

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.2	P/P	90 - 110
Kjeldahl Nitrogen	97.2	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91045

Included Lab Sample IDs: 2078965, 2078966, 2078967, 2078974, 2078977, 2078980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.9	P/P	90 - 110
Total Alkalinity	99.9	107	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A91045

Included Lab Sample IDs: 2078965, 2078966, 2078967, 2078974, 2078977, 2078980

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	100	P/P	90 - 110
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91077

Included Lab Sample IDs: 2078996

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	102	102	P/P	90 - 110
Thallium	96.2	95.6	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.532	
EPA 200.7 Rev. 4.4	Barium	96.1	95.3	96.7	97.5			0.856
	Calcium	106	98.6	107	105			1.79
	Iron	103	105	106	105			1.16
	Magnesium	110	100	112	110			1.57
	Potassium	103	101	108	108			0.811
	Sodium	105	99.0	102	102			0.138
	Zinc	97.0	97.1	98.1	99.4			1.25
EPA 200.8 Rev. 5.4	Aluminum	93.1	90.8	91.0	89.6			1.37
	Antimony	91.8	91.8	90.2	89.8			0.522
	Arsenic	95.2	94.4	92.6	92.6			0.0398
	Boron	94.6	95.9	95.7	94.3			1.38
	Cadmium	95.9	95.1	94.0	92.7			1.49
	Chromium	87.7	87.5	89.2	88.4			0.876
	Copper	93.1	89.4	93.2	93.2			0.0551
	Lead	96.5	96.4	96.8	96.4			0.408
	Nickel	93.3	90.6	93.1	93.1			0.0864
	Silver	113	112	110	112			1.17
	Thallium	90.8	112	109	111			1.91
EPA 300.0 Rev. 2.1	Chloride	100	96.5	99.2			0.0071	
	Sulfate	99.7	96.5	97.9			0.202	
EPA 350.1 Rev. 2.0	Ammonia-N	104	104	102				1.10
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.8	96.0	91.0				3.33
	Kjeldahl Nitrogen	101	95.1	97.9				2.22
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	100	98.6				1.13
	NO ₂ NO ₃ -N	98.5	98.0	98.0				0.0
EPA 365.1 Rev. 2.0	Total-P	98.6	98.4	96.7				1.58
	Total-P	101	101	103				2.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.8	100				0.699
	O-Phosphate-P	101	96.6	94.5				1.59
	O-Phosphate-P	100	95.6	98.7				3.01
EPA 8321B	2,4-D	66.6	86.5	87.4				0.554
	Acesulfame K	106	102	86.1				16.8
	Acetaminophen	88.0	77.5	83.3				7.21
	AMPA	116	145	147				1.17
	Bentazon	99.8	67.3	66.2				0.814
	Carbamazepine	81.6	86.6	94.4				8.15
	Diuron	79.2	72.2	70.7				2.18
	Endothall	114	103	105				1.13
	Fenuron	103	96.8	109				12.0
	Fluridone	110	176	72.4				20.4
	Glufosinate	119	123	112				9.39
	Glyphosate	118	114	113				1.08
	Hydrocodone	74.3	93.7	94.9				1.28
	Ibuprofen	79.5	65.0	61.0				6.24
	Imazapyr	78.4	97.0	55.2				24.0
	Imidacloprid	89.3	159	170				6.54
	Linuron	79.3	70.9	72.5				2.32
	MCPP	80.4	101	105				4.19
	Naproxen	52.3	69.9	56.9				20.6
	Primidone	81.1	67.6	64.2				4.56
	Pyraclostrobin	90.5	74.6	80.8				8.08
	Sucralose	107	76.2	93.8				20.7
	Triclopyr	56.2	61.2	56.0				8.83

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 2120 B	Color (true)	104			0.861	
	Color (true)	104			6.46	
SM 2320 B-97	Total Alkalinity	102			0.124	
	Total Alkalinity	102			0.265	
SM 2540 C-97	TDS				5.55	
SM 4500 F-C-97	Fluoride	98.3	97.3 97.3			0.0
	Fluoride	99.3	98.5 98.5			0.0
SM 5310 B-00	Organic Carbon	99.5	97.1 97.4			0.250

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2078996
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2078996
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2078968, 2078969, 2078970, 2078975, 2078978, 2078981
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2078968, 2078969, 2078970, 2078975, 2078978, 2078981
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2078968, 2078969, 2078970, 2078975, 2078978, 2078981
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2078968, 2078969, 2078970, 2078975, 2078978, 2078981
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2078971, 2078972, 2078973, 2078976, 2078979, 2078982
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2078995
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2078995
SM 2120 B / E31780	True Color measured at 450 nm	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2078968, 2078969, 2078970, 2078975, 2078978, 2078981

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	04/17/2019			04/17/2019 17:22	Adrian Shelby	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
EPA 200.7 Rev. 4.4	04/17/2019	04/22/2019 15:30	Elliott D. Healy	04/24/2019 14:01	Betina Topolski	2078996
EPA 200.8 Rev. 5.4	04/17/2019	04/22/2019 15:30	Elliott D. Healy	04/24/2019 21:13	Robert K Palmer	2078996
	04/17/2019	04/22/2019 15:30	Elliott D. Healy	04/29/2019 22:04	Robert K Palmer	2078996
EPA 300.0 Rev. 2.1	04/17/2019			04/24/2019 15:45	Lipi Saha	2078980
	04/17/2019			04/24/2019 17:22	Lipi Saha	2078965
	04/17/2019			04/24/2019 17:34	Lipi Saha	2078966
	04/17/2019			04/24/2019 17:46	Lipi Saha	2078967
	04/17/2019			04/24/2019 17:58	Lipi Saha	2078974
	04/17/2019			04/24/2019 18:10	Lipi Saha	2078977
EPA 350.1 Rev. 2.0	04/17/2019			04/23/2019 11:35	Ping Hua	2078969
	04/17/2019			04/23/2019 11:42	Ping Hua	2078968
	04/17/2019			04/23/2019 11:44	Ping Hua	2078970
	04/17/2019			04/23/2019 11:45	Ping Hua	2078975
	04/17/2019			04/23/2019 11:53	Ping Hua	2078978
	04/17/2019			04/23/2019 11:54	Ping Hua	2078981
EPA 351.2 Rev. 2.0	04/17/2019	04/23/2019 12:00	Adrian Shelby	04/25/2019 12:08	Joseph Suarez	2078968
	04/17/2019	04/23/2019 12:00	Adrian Shelby	04/25/2019 12:10	Joseph Suarez	2078969
	04/17/2019	04/23/2019 12:00	Adrian Shelby	04/25/2019 12:11	Joseph Suarez	2078970
	04/17/2019	04/23/2019 12:00	Adrian Shelby	04/25/2019 12:13	Joseph Suarez	2078975
	04/17/2019	04/25/2019 12:20	Adrian Shelby	04/26/2019 09:11	Joseph Suarez	2078978
	04/17/2019	04/25/2019 12:20	Adrian Shelby	04/26/2019 09:16	Joseph Suarez	2078981
EPA 353.2 Rev. 2.0	04/17/2019			04/24/2019 09:51	Beverly Y. Sanders	2078975
	04/17/2019			04/24/2019 09:57	Beverly Y. Sanders	2078978
	04/17/2019			04/24/2019 09:58	Beverly Y. Sanders	2078981
	04/17/2019			04/24/2019 11:30	Beverly Y. Sanders	2078968
	04/17/2019			04/24/2019 11:31	Beverly Y. Sanders	2078969
	04/17/2019			04/24/2019 11:32	Beverly Y. Sanders	2078970
EPA 365.1 Rev. 2.0	04/17/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 14:34	Rosalyn Ballman	2078968
	04/17/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 14:35	Rosalyn Ballman	2078969
	04/17/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 14:36	Rosalyn Ballman	2078970
	04/17/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 14:37	Rosalyn Ballman	2078975
	04/17/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 14:38	Rosalyn Ballman	2078978
	04/17/2019	04/22/2019 15:10	Sima Feizi	04/23/2019 14:40	Rosalyn Ballman	2078981
EPA 365.1 Rev. 2.0 dissolved	04/17/2019			04/17/2019 16:11	Jhamieka S. Greenwood	2078982
	04/17/2019			04/17/2019 16:38	Jhamieka S. Greenwood	2078971
	04/17/2019			04/17/2019 16:39	Jhamieka S. Greenwood	2078972
	04/17/2019			04/17/2019 16:40	Jhamieka S. Greenwood	2078973
	04/17/2019			04/17/2019 16:41	Jhamieka S. Greenwood	2078976, 2078979

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/17/2019	04/18/2019 12:00	Hoor Shaik	04/22/2019 07:21	Juyoung Kim	2078995
	04/17/2019	04/19/2019 10:15	Rebecca Ware	04/19/2019 14:58	Rebecca Ware	2078995
	04/17/2019	04/19/2019 10:15	Rebecca Ware	04/22/2019 12:23	Rebecca Ware	2078995
	04/17/2019	04/19/2019 10:15	Rebecca Ware	04/24/2019 19:07	Rebecca Ware	2078995
SM 2120 B	04/17/2019			04/17/2019 16:38	Mariam Hanna	2078965
	04/17/2019			04/17/2019 16:39	Mariam Hanna	2078966
	04/17/2019			04/17/2019 16:44	Mariam Hanna	2078974
	04/17/2019			04/17/2019 16:46	Mariam Hanna	2078967
	04/17/2019			04/17/2019 16:48	Mariam Hanna	2078980
SM 2320 B-97	04/17/2019			04/17/2019 16:53	Mariam Hanna	2078977
	04/17/2019			04/26/2019 06:17	Dale L. Simmons	2078965
	04/17/2019			04/26/2019 06:30	Dale L. Simmons	2078966
	04/17/2019			04/26/2019 06:44	Dale L. Simmons	2078967
	04/17/2019			04/26/2019 06:57	Dale L. Simmons	2078974
SM 2540 C-97	04/17/2019			04/26/2019 09:09	Dale L. Simmons	2078977
	04/17/2019			04/26/2019 09:21	Dale L. Simmons	2078980
	04/17/2019			04/22/2019 15:58	Yijie Li	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
SM 2540 D-97	04/17/2019			04/22/2019 15:58	Yijie Li	2078965, 2078966, 2078967, 2078974, 2078977, 2078980
SM 4500 F-C-97	04/17/2019			04/26/2019 06:17	Dale L. Simmons	2078965
	04/17/2019			04/26/2019 06:30	Dale L. Simmons	2078966
	04/17/2019			04/26/2019 06:44	Dale L. Simmons	2078967
	04/17/2019			04/26/2019 06:57	Dale L. Simmons	2078974
	04/17/2019			04/26/2019 09:09	Dale L. Simmons	2078977
SM 5310 B-00	04/17/2019			04/26/2019 09:21	Dale L. Simmons	2078980
	04/17/2019			04/19/2019 15:59	Julia Storbeck	2078981
	04/17/2019			04/19/2019 17:49	Julia Storbeck	2078968
	04/17/2019			04/19/2019 18:01	Julia Storbeck	2078969
	04/17/2019			04/19/2019 18:13	Julia Storbeck	2078970
	04/17/2019			04/19/2019 18:25	Julia Storbeck	2078975
	04/17/2019			04/19/2019 18:37	Julia Storbeck	2078978