Chemical Analysis Report

SO-DIST-2019-02-08-01

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

Event Description: **2019 SMP : Myakka Streams**
Request ID: **RQ-2019-02-04-64**
Customer: **SO-DIST**
Project ID: **SMP**

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FLDEP South District Office
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 04-MAR-2019 16:15

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: Myakka(Tidal) @US41 **Collection Date/Time: 02/07/2019 09:40**

Field ID: G3SD0068 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061097	EPA 8321B	2,4-D	0.0093		ug/L	P358573	
		Acesulfame K**	0.10	U	ug/L	P358574	
		AMPA**	0.43		ug/L	P358574	
		Sucralose**	0.063		ug/L	P358574	
		Acetaminophen**	0.0080	U	ug/L	P358573	
		Endothall**	0.25	U	ug/L	P358574	
		Glufosinate**	0.10	U	ug/L	P358574	
		Bentazon	0.0038		ug/L	P358573	
		Glyphosate**	0.36	I	ug/L	P358574	
		Carbamazepine**	8.0E-04	U	ug/L	P358573	
		Diuron	0.011		ug/L	P358573	
		Fenuron	0.016	U	ug/L	P358573	
		Imazapyr**	0.042		ug/L	P358573	
		Imidacloprid	0.022		ug/L	P358573	MS
		Linuron	0.0040	U	ug/L	P358573	
		MCPP	0.0020	U	ug/L	P358573	
		Primidone**	0.0040	U	ug/L	P358573	
		Pyraclostrobin**	0.0020	U	ug/L	P358573	
		Triclopyr**	0.0040	U	ug/L	P358573	
		Fluridone**	0.0021	I	ug/L	P358573	
		Hydrocodone**	0.0020	U	ug/L	P358573	
		Naproxen**	0.0080	U	ug/L	P358573	
		Ibuprofen**	0.020	U	ug/L	P358573	

Ref. Method and Comment:
EPA 8321B: MS accuracy for imazapyr could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: RockCreek@EisenhowerDr **Collection Date/Time: 02/07/2019 10:20**

Field ID: G3SD0070 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061075	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P358622	
	EPA 300.0	Bromide	6.0		mg Br/L	P358982	
	SM 2320 B-97	Total Alkalinity	75		mg CaCO3/L	P359099	
	SM 2540 D-97	TSS	10	IA	mg/L	P359152	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P359103	
2061076	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P359059	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P358837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P359045	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P358863	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P359405	
2061077	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.087		mg P/L	P358619	
2061098	EPA 200.7 Rev. 4.4	Barium	11.3		ug/L	P358715	
		Calcium	77.3		mg/L	P358715	
		Iron	530		ug/L	P359105	
		Magnesium	128		mg/L	P358715	
		Potassium	38		mg/L	P358715	
		Sodium	998		mg/L	P358715	
		Zinc	5.0	U	ug/L	P358715	
	EPA 200.8 Rev. 5.4	Aluminum	221		ug/L	P358715	
		Antimony	0.12	I	ug/L	P358715	
		Arsenic	1.38		ug/L	P358715	
		Boron**	374		ug/L	P358715	
		Cadmium	0.020	U	ug/L	P358715	
		Chromium	0.59	I	ug/L	P358715	
		Copper	1.11		ug/L	P358715	
		Lead	0.21	I	ug/L	P358715	
		Nickel	0.50	U	ug/L	P358715	
		Selenium	0.20	U	ug/L	P358715	
		Silver	0.010	U	ug/L	P358715	
		Thallium	0.10	U	ug/L	P358715	

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: RockCreek@EisenhowerDr **Collection Date/Time: 02/07/2019 10:25**

Field ID: G3SD0070_DUP Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061084	EPA 180.1 Rev. 2.0	Turbidity	7.5		NTU	P358622	
	EPA 300.0	Bromide	6.0		mg Br/L	P358982	
	SM 2320 B-97	Total Alkalinity	76		mg CaCO3/L	P359099	
	SM 2540 D-97	TSS	10		mg/L	P359154	
	SM 4500 F-C-97	Fluoride	0.30		mg F/L	P359103	
2061085	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P358911	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P358837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P359046	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P358863	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P359405	
2061086	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.087		mg P/L	P358619	
2061100	EPA 200.7 Rev. 4.4	Barium	11.2		ug/L	P358715	
		Calcium	76.2		mg/L	P358715	
		Iron	570		ug/L	P359105	
		Magnesium	129		mg/L	P358715	
		Potassium	39		mg/L	P358715	
		Sodium	1.00E+03		mg/L	P358715	
		Zinc	5.0	U	ug/L	P358715	
	EPA 200.8 Rev. 5.4	Aluminum	253		ug/L	P358715	
		Antimony	0.13	I	ug/L	P358715	
		Arsenic	1.44		ug/L	P358715	
		Boron**	382		ug/L	P358715	
		Cadmium	0.020	U	ug/L	P358715	
		Chromium	0.83	I	ug/L	P358715	
		Copper	1.20		ug/L	P358715	
		Lead	0.27	I	ug/L	P358715	
		Nickel	0.57	I	ug/L	P358715	
		Selenium	0.20	U	ug/L	P358715	
		Silver	0.010	U	ug/L	P358715	
		Thallium	0.10	U	ug/L	P358715	

Sample Location: Apollo Waterway @ Bend **Collection Date/Time: 02/07/2019 11:10**

Field ID: G3SD0069 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061078	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P358622	
	EPA 300.0	Bromide	8.8		mg Br/L	P358982	
	SM 2320 B-97	Total Alkalinity	91		mg CaCO3/L	P359099	
	SM 2540 D-97	TSS	7	I	mg/L	P359152	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P359103	
2061079	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P358798	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P358837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P359045	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P358863	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P359405	
2061080	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.082		mg P/L	P358619	

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: LittleAlligator@Midway **Collection Date/Time: 02/07/2019 11:55**

Field ID: G3SD0071 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2061081	EPA 180.1 Rev. 2.0	Turbidity	12	A	NTU	P358622	
	EPA 300.0	Bromide	22		mg Br/L	P358982	
	SM 2320 B-97	Total Alkalinity	167		mg CaCO3/L	P359100	
	SM 2540 D-97	TSS	28	A	mg/L	P359154	
	SM 4500 F-C-97	Fluoride	0.65		mg F/L	P359104	
2061082	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P358911	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P358837	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P359046	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P358863	
	SM 5310 B-00	Organic Carbon	8.2		mg C/L	P359404	
2061083	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.082		mg P/L	P358619	
2061099	EPA 200.7 Rev. 4.4	Barium	20		ug/L	P358880	
		Calcium	196		mg/L	P358880	
		Iron	570		ug/L	P358880	
		Magnesium	435		mg/L	P358880	
		Potassium	125		mg/L	P358880	
		Sodium	3.37E+03		mg/L	P358880	
		Zinc	15	U	ug/L	P358880	
	EPA 200.8 Rev. 5.4	Aluminum	271		ug/L	P358880	
		Antimony	0.38	I	ug/L	P358880	
		Arsenic	2.59		ug/L	P358880	
		Boron**	1.46E+03		ug/L	P358880	
		Cadmium	0.060	U	ug/L	P358880	
		Chromium	1.2	U	ug/L	P358880	
		Copper	1.4	I	ug/L	P358880	
		Lead	0.60	U	ug/L	P358880	
		Nickel	1.5	U	ug/L	P358880	
		Selenium	0.60	U	ug/L	P358880	
		Silver	0.030	U	ug/L	P358880	
		Thallium	0.30	U	ug/L	P358880	

Ref. Method and Comment:
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, magnesium, potassium and sodium are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358622

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358715

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/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 200.7 Rev. 4.4
Batch ID: P358880

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 200.7 Rev. 4.4
Batch ID: P359105

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358715

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
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358880

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358880

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
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0
Batch ID: P358982

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358798

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358911

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359059

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358837

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359045

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359046

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358863

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358619

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

Reference Method: EPA 8321B
Batch ID: P358573

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: P358574

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: P359099

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P359100

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

Reference Method: SM 2540 D-97
Batch ID: P359152

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359154

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359103

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P359104

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P359404

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

Reference Method: SM 5310 B-00
Batch ID: P359405

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: P358715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	102		P	85 - 115
Calcium	105		P	85 - 115
Magnesium	113		P	85 - 115
Potassium	110		P	85 - 115
Sodium	107		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	103		P	85 - 115
Calcium	103		P	85 - 115
Iron	108		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	103		P	85 - 115
Sodium	100		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P359105

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	100		P	85 - 115
Arsenic	105		P	85 - 115
Boron	99.9		P	85 - 115
Cadmium	110		P	85 - 115
Chromium	101		P	85 - 115
Copper	101		P	85 - 115
Lead	93.5		P	85 - 115
Nickel	102		P	85 - 115
Selenium	103		P	85 - 115
Silver	103		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	106		P	85 - 115
Boron	106		P	85 - 115
Cadmium	104		P	85 - 115
Chromium	105		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358880

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	103		P	85 - 115
Lead	106		P	85 - 115
Nickel	104		P	85 - 115
Selenium	102		P	85 - 115
Silver	102		P	85 - 115
Thallium	105		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P358982

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358798

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: P358911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359059

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358837

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359045

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359046

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358863

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358619

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

Reference Method: EPA 8321B
Batch ID: P358573

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	60.5		P	40 - 150
Acetaminophen	82.2		P	30 - 150
Bentazon	64.9		P	30 - 150
Carbamazepine	85.2		P	40 - 150
Diuron	83.0		P	40 - 150
Fenuron	101		P	40 - 150
Fluridone	101		P	40 - 150
Hydrocodone	96.7		P	40 - 150
Ibuprofen	75.9		P	40 - 150
Imazapyr	74.4		P	40 - 150
Imidacloprid	111		P	40 - 150
Linuron	82.4		P	40 - 150
MCPP	79.2		P	40 - 150
Naproxen	70.7		P	40 - 150
Primidone	94.4		P	40 - 150
Pyraclostrobin	78.1		P	40 - 150
Triclopyr	50.5		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P358574

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	106		P	40 - 150
AMPA	101		P	40 - 150
Endothall	63.1		P	40 - 150
Glufosinate	91.0		P	40 - 150
Glyphosate	98.4		P	40 - 140
Sucralose	80.6		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P359099

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

Reference Method: SM 2320 B-97
Batch ID: P359100

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P359103

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P359104

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.3		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P359405

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061038	Barium	101		P	80 - 120
2061038	Calcium	103		P	80 - 120
2061038	Magnesium	102		P	80 - 120
2061038	Potassium	108		P	80 - 120
2061038	Sodium	108		P	80 - 120
2061038	Zinc	101		P	80 - 120
2061045	Barium	104	102	P/P	80 - 120
2061045	Calcium	102		P	80 - 120
2061045	Magnesium	111	108	P/P	80 - 120
2061045	Potassium	106	102	P/P	80 - 120
2061045	Sodium	107		P	80 - 120
2061045	Zinc	106	104	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061242	Barium	96.6	98.8	P/P	70 - 130
2061242	Iron	102	100	P/P	70 - 130
2061242	Zinc	102	104	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P359105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063032	Iron	104		P	80 - 120
2063047	Iron	104	109	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061038	Aluminum	99.4		P	80 - 120
2061038	Antimony	102		P	80 - 120
2061038	Arsenic	103		P	80 - 120
2061038	Boron	104		P	80 - 120
2061038	Cadmium	109		P	80 - 120
2061038	Chromium	99.8		P	80 - 120
2061038	Copper	98.0		P	80 - 120
2061038	Lead	98.3		P	80 - 120
2061038	Nickel	98.5		P	80 - 120
2061038	Selenium	101		P	80 - 120
2061038	Silver	104		P	80 - 120
2061038	Thallium	111		P	80 - 120
2061045	Aluminum	102	100	P/P	80 - 120
2061045	Antimony	103	101	P/P	80 - 120
2061045	Arsenic	103	102	P/P	80 - 120
2061045	Boron	110	109	P/P	80 - 120
2061045	Cadmium	112	110	P/P	80 - 120
2061045	Chromium	103	100	P/P	80 - 120
2061045	Copper	99.4	97.8	P/P	80 - 120
2061045	Lead	98.4	97.7	P/P	80 - 120

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061045	Nickel	101	98.7	P/P	80 - 120
2061045	Selenium	99.5	98.1	P/P	80 - 120
2061045	Silver	104	103	P/P	80 - 120
2061045	Thallium	110	111	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358880

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061242	Aluminum	103	104	P/P	70 - 130
2061242	Antimony	105	106	P/P	70 - 130
2061242	Arsenic	113	113	P/P	70 - 130
2061242	Boron	95.7	111	P/P	70 - 130
2061242	Cadmium	102	102	P/P	70 - 130
2061242	Chromium	97.9	97.6	P/P	70 - 130
2061242	Copper	96.7	96.8	P/P	70 - 130
2061242	Lead	108	110	P/P	70 - 130
2061242	Nickel	94.8	94.8	P/P	70 - 130
2061242	Selenium	103	104	P/P	70 - 130
2061242	Silver	94.3	94.2	P/P	70 - 130
2061242	Thallium	103	105	P/P	70 - 130

Reference Method: EPA 300.0
Batch ID: P358982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058620	Bromide	96.0		P	90 - 110
2061372	Bromide	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060245	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061085	Ammonia-N	96.9	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359059

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061076	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061648	Kjeldahl Nitrogen	107	96.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060858	NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061082	NO2NO3-N	97.3	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061614	Total-P	97.7	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061077	O-Phosphate-P	97.1	98.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P358573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061239	2,4-D	70.1	65.3	P/P	40 - 150
2061239	Acetaminophen	118	116	P/P	30 - 150
2061239	Bentazon	36.7	36.3	P/P	30 - 150
2061239	Carbamazepine	71.9	74.9	P/P	40 - 150
2061239	Diuron	62.4	66.4	P/P	40 - 150
2061239	Fenuron	83.3	80.6	P/P	40 - 150
2061239	Fluridone	80.8	87.0	P/P	40 - 150
2061239	Hydrocodone	78.8	79.7	P/P	40 - 150
2061239	Ibuprofen	87.9	87.0	P/P	40 - 150
2061239	Imidacloprid	184	167	F/F	40 - 150
2061239	Linuron	66.6	70.5	P/P	40 - 150
2061239	MCPP	88.5	79.5	P/P	40 - 150
2061239	Naproxen	51.7	50.3	P/P	40 - 150
2061239	Primidone	109	102	P/P	40 - 150
2061239	Pyraclostrobin	78.7	76.3	P/P	40 - 150
2061239	Triclopyr	47.4	40.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P358574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061097	Acesulfame K	95.9	90.2	P/P	40 - 150
2061097	AMPA	91.2	80.9	P/P	40 - 150
2061097	Endothall	73.1	64.2	P/P	40 - 150
2061097	Glufosinate	87.8	89.2	P/P	40 - 150
2061097	Glyphosate	77.5	62.6	P/P	40 - 140
2061097	Sucralose	109	87.6	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P359103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060786	Fluoride	97.0	97.0	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P359104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061232	Fluoride	96.9	96.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2061082	Organic Carbon	91.8	95.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P359405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2060778	Organic Carbon	97.0	98.7	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061081	Turbidity	0.803	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061045	Barium	1.14	Spike	P	0 - 20
2061045	Calcium	2.04	Spike	P	0 - 20
2061045	Magnesium	2.35	Spike	P	0 - 20
2061045	Potassium	2.85	Spike	P	0 - 20
2061045	Sodium	3.02	Spike	P	0 - 20
2061045	Zinc	1.53	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P358880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061242	Barium	2.15	Spike	P	0 - 20
2061242	Calcium	0.212	Spike	P	0 - 20
2061242	Iron	1.88	Spike	P	0 - 20
2061242	Magnesium	0.190	Spike	P	0 - 20
2061242	Potassium	1.07	Spike	P	0 - 20
2061242	Sodium	0.251	Spike	P	0 - 20
2061242	Zinc	2.04	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P359105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063047	Iron	4.67	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061045	Aluminum	1.49	Spike	P	0 - 20
2061045	Antimony	1.74	Spike	P	0 - 20
2061045	Arsenic	0.756	Spike	P	0 - 20
2061045	Boron	1.27	Spike	P	0 - 20
2061045	Cadmium	2.28	Spike	P	0 - 20
2061045	Chromium	2.89	Spike	P	0 - 20
2061045	Copper	1.60	Spike	P	0 - 20
2061045	Lead	0.739	Spike	P	0 - 20
2061045	Nickel	2.19	Spike	P	0 - 20
2061045	Selenium	1.37	Spike	P	0 - 20
2061045	Silver	1.10	Spike	P	0 - 20
2061045	Thallium	0.462	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P358880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061242	Aluminum	0.577	Spike	P	0 - 20
2061242	Antimony	0.643	Spike	P	0 - 20
2061242	Arsenic	0.576	Spike	P	0 - 20
2061242	Boron	2.81	Spike	P	0 - 20
2061242	Cadmium	0.152	Spike	P	0 - 20
2061242	Chromium	0.289	Spike	P	0 - 20
2061242	Copper	0.0256	Spike	P	0 - 20
2061242	Lead	1.22	Spike	P	0 - 20
2061242	Nickel	0.0632	Spike	P	0 - 20
2061242	Selenium	1.02	Spike	P	0 - 20
2061242	Silver	0.100	Spike	P	0 - 20
2061242	Thallium	2.60	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P358982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058620	Bromide	0.790	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060245	Ammonia-N	0.135	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061085	Ammonia-N	2.22	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061076	Ammonia-N	0.359	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061648	Kjeldahl Nitrogen	5.98	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060858	NO2NO3-N	0.456	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061082	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061614	Total-P	2.83	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061077	O-Phosphate-P	0.918	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P358573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061239	2,4-D	4.88	Spike	P	0 - 30
2061239	Acetaminophen	2.21	Spike	P	0 - 30
2061239	Bentazon	0.308	Spike	P	0 - 30
2061239	Carbamazepine	3.99	Spike	P	0 - 30
2061239	Diuron	5.81	Spike	P	0 - 30
2061239	Fenuron	3.35	Spike	P	0 - 30
2061239	Fluridone	3.32	Spike	P	0 - 30
2061239	Hydrocodone	1.14	Spike	P	0 - 30
2061239	Ibuprofen	1.12	Spike	P	0 - 30
2061239	Imazapyr	24.4	Spike	P	0 - 30
2061239	Imidacloprid	7.98	Spike	P	0 - 30
2061239	Linuron	5.72	Spike	P	0 - 30
2061239	MCPP	10.6	Spike	P	0 - 30
2061239	Naproxen	2.75	Spike	P	0 - 30
2061239	Primidone	6.24	Spike	P	0 - 30
2061239	Pyraclostrobin	3.10	Spike	P	0 - 30
2061239	Triclopyr	15.6	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P358574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P358574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061097	Acesulfame K	6.10	Spike	P	0 - 30
2061097	AMPA	8.02	Spike	P	0 - 30
2061097	Endothall	13.0	Spike	P	0 - 30
2061097	Glufosinate	1.54	Spike	P	0 - 30
2061097	Glyphosate	14.1	Spike	P	0 - 30
2061097	Sucralose	21.3	Spike	P	0 - 30

Reference Method: SM 2320 B-97
Batch ID: P359099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060786	Total Alkalinity	0.489	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P359100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061232	Total Alkalinity	0.248	Sample	P	0 - 1.6

Reference Method: SM 2540 D-97
Batch ID: P359154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061081	TSS	5.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P359103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060786	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P359104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061232	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P359404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2061082	Organic Carbon	3.03	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P359405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2060778	Organic Carbon	1.09	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: 2061097
Field Sample ID: G3SD0068

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	90.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	114	P	30 - 160
EPA 8321B	Carbamazepine-d10	68.0	P	30 - 160
EPA 8321B	Diuron-d6	57.9	P	30 - 160
EPA 8321B	Endothall-d6	81.3	P	40 - 160
EPA 8321B	Endothall-d6	81.3	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	43.0	P	40 - 160
EPA 8321B	Glyphosate 13C 15N	43.0	P	40 - 160
EPA 8321B	Ibuprofen-d3	78.1	P	30 - 160
EPA 8321B	Primidone-d5	97.8	P	30 - 160
EPA 8321B	Sucralose-d6	98.7	P	40 - 160
EPA 8321B	Sucralose-d6	98.7	P	40 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A89302
Included Lab Sample IDs: 2061077, 2061080, 2061083, 2061086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	98.4	P/P	90 - 110
O-Phosphate-P	98.4	97.8	P/P	90 - 110
O-Phosphate-P	99.1	97.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A89303
Included Lab Sample IDs: 2061075, 2061078, 2061081, 2061084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: EPA 8321B
Run ID: A89308
Included Lab Sample IDs: 2061097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	94.9	107	P/P	60 - 160
Glufosinate	76.1	73.2	P/P	60 - 160
Glyphosate	89.9	86.5	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89374
Included Lab Sample IDs: 2061079

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A89387
Included Lab Sample IDs: 2061098, 2061100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	99.6	P/P	90 - 110
Calcium	100	98.2	P/P	90 - 110
Magnesium	101	99.0	P/P	90 - 110
Potassium	100	98.4	P/P	90 - 110
Sodium	105	99.4	P/P	90 - 110
Zinc	101	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89405
Included Lab Sample IDs: 2061098, 2061100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	106	P/P	90 - 110
Antimony	102	105	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Chromium	105	105	P/P	90 - 110
Copper	106	106	P/P	90 - 110
Lead	101	102	P/P	90 - 110
Nickel	104	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89405
Included Lab Sample IDs: 2061098, 2061100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	103	103	P/P	90 - 110
Silver	107	107	P/P	90 - 110
Thallium	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89410
Included Lab Sample IDs: 2061076, 2061079, 2061082, 2061085

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89413
Included Lab Sample IDs: 2061082, 2061085

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

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A89433
Included Lab Sample IDs: 2061099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Calcium	98.8	98.8	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Potassium	99.3	100	P/P	90 - 110
Sodium	99.2	98.9	P/P	90 - 110
Zinc	102	101	P/P	90 - 110

Reference Method: EPA 300.0
Run ID: A89435
Included Lab Sample IDs: 2061075, 2061078, 2061081, 2061084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.0	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A89437
Included Lab Sample IDs: 2061076, 2061079, 2061082, 2061085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A89458
Included Lab Sample IDs: 2061076, 2061079, 2061082, 2061085

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A89458
Included Lab Sample IDs: 2061076, 2061079, 2061082, 2061085

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

Reference Method: EPA 8321B
Run ID: A89461
Included Lab Sample IDs: 2061097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	90.0	104	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89467
Included Lab Sample IDs: 2061076

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89470
Included Lab Sample IDs: 2061098, 2061100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cadmium	96.9	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A89482
Included Lab Sample IDs: 2061075, 2061078, 2061081, 2061084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A89482
Included Lab Sample IDs: 2061075, 2061078, 2061081, 2061084

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	99.5	98.1	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A89502
Included Lab Sample IDs: 2061097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	69.5	80.2	P/P	50 - 150
Acetaminophen	115	111	P/P	60 - 160
Bentazon	83.7	74.6	P/P	50 - 160
Carbamazepine	99.4	98.4	P/P	60 - 150
Diuron	97.4	89.5	P/P	60 - 150
Fenuron	100	97.0	P/P	60 - 150
Fluridone	98.2	104	P/P	60 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A89502
Included Lab Sample IDs: 2061097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Hydrocodone	110	98.7	P/P	60 - 150
Ibuprofen	71.3	82.8	P/P	50 - 160
Imazapyr	79.3	63.5	P/P	50 - 150
Imidacloprid	108	93.7	P/P	60 - 150
Linuron	96.1	104	P/P	60 - 150
MCPP	83.5	87.0	P/P	50 - 150
Naproxen	102	93.1	P/P	50 - 160
Primidone	106	91.5	P/P	60 - 150
Pyraclostrobin	115	111	P/P	60 - 150
Triclopyr	79.0	82.1	P/P	50 - 150

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A89512
Included Lab Sample IDs: 2061098, 2061100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	99.8	P/P	95 - 105

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89551
Included Lab Sample IDs: 2061098, 2061100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	95.4	98.0	P/P	90 - 110
Boron	90.2	99.4	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A89585
Included Lab Sample IDs: 2061097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	106	106	P/P	60 - 160
Endothall	95.0	105	P/P	60 - 160

Reference Method: SM 5310 B-00
Run ID: A89596
Included Lab Sample IDs: 2061082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	93.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A89598
Included Lab Sample IDs: 2061076, 2061079, 2061085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.2	93.6	P/P	90 - 110
Organic Carbon	93.6	98.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89601
Included Lab Sample IDs: 2061099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	102	101	P/P	90 - 110
Antimony	99.3	98.3	P/P	90 - 110
Arsenic	99.9	99.0	P/P	90 - 110
Boron	103	98.1	P/P	90 - 110
Cadmium	99.2	98.0	P/P	90 - 110
Copper	98.7	97.0	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Nickel	98.8	96.8	P/P	90 - 110
Selenium	100	99.1	P/P	90 - 110
Silver	96.7	94.6	P/P	90 - 110
Thallium	94.2	94.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A89713
Included Lab Sample IDs: 2061099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	101	96.9	P/P	90 - 110

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

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.803	
EPA 200.7 Rev. 4.4	Barium	102	101	104	102			1.14
	Barium	103	96.6	98.8				2.15
	Calcium	105	103	102				2.04
	Calcium	103						0.212
	Iron	108	102	100				1.88
	Iron	105	104	104	109			4.67
	Magnesium	113	102	111	108			2.35
	Magnesium	105						0.190
	Potassium	110	108	106	102			2.85
	Potassium	103						1.07
	Sodium	107	108	107				3.02
	Sodium	100						0.251
	Zinc	101	101	106	104			1.53
	Zinc	102	102	104				2.04
EPA 200.8 Rev. 5.4	Aluminum	101	99.4	102	100			1.49
	Aluminum	103	103	104				0.577
	Antimony	100	102	103	101			1.74
	Antimony	102	105	106				0.643
	Arsenic	105	103	103	102			0.756
	Arsenic	106	113	113				0.576
	Boron	99.9	104	110	109			1.27
	Boron	106	95.7	111				2.81
	Cadmium	110	109	112	110			2.28
	Cadmium	104	102	102				0.152
	Chromium	101	99.8	103	100			2.89
	Chromium	105	97.9	97.6				0.289
	Copper	101	98.0	99.4	97.8			1.60
	Copper	103	96.7	96.8				0.0256
	Lead	93.5	98.3	98.4	97.7			0.739
	Lead	106	108	110				1.22
	Nickel	102	98.5	101	98.7			2.19
	Nickel	104	94.8	94.8				0.0632
	Selenium	103	101	99.5	98.1			1.37
	Selenium	102	103	104				1.02
	Silver	103	104	104	103			1.10
	Silver	102	94.3	94.2				0.100
	Thallium	103	111	110	111			0.462
	Thallium	105	103	105				2.60
EPA 300.0	Bromide	100	96.0	96.0			0.790	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	101				0.135
	Ammonia-N	92.5	96.9	99.4				2.22
	Ammonia-N	100	101	101				0.359
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	107	96.9				5.98
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	98.5					0.456
	NO2NO3-N	100	97.3	96.3				1.03
EPA 365.1 Rev. 2.0	Total-P	103	97.7	94.9				2.83
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.1	98.8				0.918
EPA 8321B	2,4-D	60.5	65.3	70.1				4.88
	Acesulfame K	106	95.9	90.2				6.10
	Acetaminophen	82.2	116	118				2.21
	AMPA	101	91.2	80.9				8.02
	Bentazon	64.9	36.3	36.7				0.308
	Carbamazepine	85.2	74.9	71.9				3.99

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 8321B	Diuron	83.0	66.4	62.4			5.81
	Endothall	63.1	73.1	64.2			13.0
	Fenuron	101	80.6	83.3			3.35
	Fluridone	101	87.0	80.8			3.32
	Glufosinate	91.0	87.8	89.2			1.54
	Glyphosate	98.4	77.5	62.6			14.1
	Hydrocodone	96.7	79.7	78.8			1.14
	Ibuprofen	75.9	87.0	87.9			1.12
	Imazapyr	74.4					24.4
	Imidacloprid	111	167	184			7.98
	Linuron	82.4	70.5	66.6			5.72
	MCPP	79.2	79.5	88.5			10.6
	Naproxen	70.7	50.3	51.7			2.75
	Primidone	94.4	102	109			6.24
	Pyraclostrobin	78.1	76.3	78.7			3.10
	Sucralose	80.6	109	87.6			21.3
	Triclopyr	50.5	40.6	47.4			15.6
SM 2320 B-97	Total Alkalinity	104				0.489	
	Total Alkalinity	104				0.248	
SM 2540 D-97	TSS					5.80	
SM 4500 F-C-97	Fluoride	98.2	97.0	97.0			0.0
	Fluoride	97.3	96.9	96.2			0.473
SM 5310 B-00	Organic Carbon	99.3	91.8	95.2			3.03
	Organic Carbon	95.2	97.0	98.7			1.09

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2061075, 2061078, 2061081, 2061084
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2061098, 2061099, 2061100
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2061098, 2061099, 2061100
EPA 300.0 / E31780	Bromide in aqueous matrices	2061075, 2061078, 2061081, 2061084
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2061076, 2061079, 2061082, 2061085
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2061076, 2061079, 2061082, 2061085
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2061076, 2061079, 2061082, 2061085
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2061076, 2061079, 2061082, 2061085
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2061077, 2061080, 2061083, 2061086
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2061097
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2061097
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2061075, 2061078, 2061081, 2061084
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2061075, 2061078, 2061081, 2061084
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2061075, 2061078, 2061081, 2061084
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2061076, 2061079, 2061082, 2061085

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	02/08/2019			02/08/2019 17:16	Adrian Shelby	2061075, 2061078, 2061081, 2061084
EPA 200.7 Rev. 4.4	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/12/2019 16:33	Martin Acosta	2061098
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/12/2019 16:42	Martin Acosta	2061098
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/12/2019 16:48	Martin Acosta	2061100
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/12/2019 16:57	Martin Acosta	2061100
	02/08/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 17:04	Betina Topolski	2061099
	02/08/2019	02/13/2019 16:35	Elliott D. Healy	02/14/2019 17:13	Betina Topolski	2061099
	02/08/2019	02/18/2019 17:15	Elliott D. Healy	02/19/2019 12:57	Betina Topolski	2061098
	02/08/2019	02/18/2019 17:15	Elliott D. Healy	02/19/2019 13:09	Betina Topolski	2061100
EPA 200.8 Rev. 5.4	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/13/2019 21:42	Robert K Palmer	2061098
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/13/2019 21:51	Robert K Palmer	2061100
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/15/2019 18:04	Robert K Palmer	2061098
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/15/2019 18:10	Robert K Palmer	2061100
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/20/2019 17:37	Robert K Palmer	2061098
	02/08/2019	02/11/2019 16:45	Elliott D. Healy	02/20/2019 17:46	Robert K Palmer	2061100
	02/08/2019	02/13/2019 16:35	Elliott D. Healy	02/22/2019 10:28	Allison Taylor	2061099
	02/08/2019	02/13/2019 16:35	Elliott D. Healy	02/22/2019 12:51	Allison Taylor	2061099
	02/08/2019	02/13/2019 16:35	Elliott D. Healy	02/28/2019 00:03	Allison Taylor	2061099
EPA 300.0	02/08/2019			02/14/2019 17:54	Lipi Saha	2061075
	02/08/2019			02/14/2019 18:11	Lipi Saha	2061078
	02/08/2019			02/14/2019 18:28	Lipi Saha	2061081
	02/08/2019			02/14/2019 18:45	Lipi Saha	2061084
EPA 350.1 Rev. 2.0	02/08/2019			02/12/2019 13:51	Ping Hua	2061079
	02/08/2019			02/13/2019 13:39	Ping Hua	2061085
	02/08/2019			02/13/2019 13:45	Ping Hua	2061082
	02/08/2019			02/15/2019 13:19	Ping Hua	2061076
EPA 351.2 Rev. 2.0	02/08/2019	02/13/2019 12:15	Adrian Shelby	02/15/2019 08:52	Joseph Suarez	2061076
	02/08/2019	02/13/2019 12:15	Adrian Shelby	02/15/2019 08:53	Joseph Suarez	2061079
	02/08/2019	02/13/2019 12:15	Adrian Shelby	02/15/2019 08:55	Joseph Suarez	2061082
	02/08/2019	02/13/2019 12:15	Adrian Shelby	02/15/2019 08:56	Joseph Suarez	2061085
EPA 353.2 Rev. 2.0	02/08/2019			02/15/2019 12:11	Beverly Y. Sanders	2061076
	02/08/2019			02/15/2019 12:12	Beverly Y. Sanders	2061079
	02/08/2019			02/15/2019 12:20	Beverly Y. Sanders	2061082
	02/08/2019			02/15/2019 12:25	Beverly Y. Sanders	2061085
EPA 365.1 Rev. 2.0	02/08/2019	02/13/2019 12:40	Sima Feizi	02/13/2019 19:52	Rosalyn Ballman	2061076
	02/08/2019	02/13/2019 12:40	Sima Feizi	02/13/2019 19:53	Rosalyn Ballman	2061079
	02/08/2019	02/13/2019 12:40	Sima Feizi	02/13/2019 19:54	Rosalyn Ballman	2061082
	02/08/2019	02/13/2019 12:40	Sima Feizi	02/13/2019 19:55	Rosalyn Ballman	2061085
EPA 365.1 Rev. 2.0 dissolved	02/08/2019			02/08/2019 16:03	Lipi Saha	2061077
	02/08/2019			02/08/2019 16:18	Lipi Saha	2061080

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	02/08/2019			02/08/2019 16:19	Lipi Saha	2061083
	02/08/2019			02/08/2019 16:24	Lipi Saha	2061086
EPA 8321B	02/08/2019	02/08/2019 12:30	Mohammad Ghaffari	02/08/2019 14:46	Mohammad Ghaffari	2061097
	02/08/2019	02/08/2019 12:30	Mohammad Ghaffari	02/13/2019 15:35	Mohammad Ghaffari	2061097
	02/08/2019	02/08/2019 12:30	Mohammad Ghaffari	02/15/2019 22:40	Mohammad Ghaffari	2061097
	02/08/2019	02/12/2019 12:00	Hoor Shaik	02/20/2019 00:20	Juyoung Kim	2061097
SM 2320 B-97	02/08/2019			02/15/2019 06:33	Dale L. Simmons	2061075
	02/08/2019			02/15/2019 06:45	Dale L. Simmons	2061084
	02/08/2019			02/15/2019 07:14	Dale L. Simmons	2061078
	02/08/2019			02/15/2019 11:59	Dale L. Simmons	2061081
SM 2540 D-97	02/08/2019			02/13/2019 15:22	Yijie Li	2061075, 2061078, 2061081, 2061084
SM 4500 F-C-97	02/08/2019			02/15/2019 06:33	Dale L. Simmons	2061075
	02/08/2019			02/15/2019 06:45	Dale L. Simmons	2061084
	02/08/2019			02/15/2019 07:14	Dale L. Simmons	2061078
	02/08/2019			02/15/2019 09:22	Dale L. Simmons	2061081
SM 5310 B-00	02/08/2019			02/21/2019 10:27	Julia Storbeck	2061082
	02/08/2019			02/22/2019 10:10	Julia Storbeck	2061076
	02/08/2019			02/22/2019 10:24	Julia Storbeck	2061079
	02/08/2019			02/22/2019 11:07	Julia Storbeck	2061085