

Chemical Analysis Report

SW-DIST-2019-04-25-02

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

Event Description: **SMP: Peace, Scott Lake, Lake Isabelle**
Request ID: **RQ-2019-04-29-05**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-MAY-2019 11:03

A handwritten signature in black ink, appearing to read "Liang Lin", 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: PEACE RIVER @ SR60

Collection Date/Time: 04/24/2019 14:10

Field ID: G3SW0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081008	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P362880	
	EPA 300.0 Rev. 2.1	Chloride	24	A	mg Cl/L	P363221	
	SM 2120 B	Color (true)	99		PCU	P362891	
	SM 2320 B-97	Total Alkalinity	61		mg CaCO3/L	P363360	
	SM 2540 C-97	TDS	166		mg/L	P363234	
	SM 2540 D-97	TSS	21		mg/L	P363124	
	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P363364	
2081010	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P363136	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P363187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P363010	
	EPA 365.1 Rev. 2.0	Total-P	0.34		mg P/L	P363061	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P363083	
2081012	EPA 300.0 Rev. 2.1 dissolved	Sulfate	13		mg SO4/L	P363222	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P362872	
2081049	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P362987	
		2,4-D	0.019	J	ug/L	P362847	MS, RPD
		AMPA**	2.4		ug/L	P362987	
		Sucralose**	3.4		ug/L	P362987	
		Endothall**	0.25	U	ug/L	P362987	
		Acetaminophen**	0.0080	U	ug/L	P362847	
		Glufosinate**	0.10	U	ug/L	P362987	
		Glyphosate**	21	J	ug/L	P362987	
		Bentazon	0.0049	J	ug/L	P362847	MS
		Carbamazepine**	0.0092		ug/L	P362847	
		Diuron	0.0020	U	ug/L	P362847	
		Fenuron	0.016	U	ug/L	P362847	
		Fluridone**	0.010		ug/L	P362847	
		Imazapyr**	0.17	J	ug/L	P362847	MS
		Hydrocodone**	0.0020	U	ug/L	P362847	
		Ibuprofen**	0.020	UJ	ug/L	P362847	MS, RPD
		Imidacloprid	0.020		ug/L	P362847	
		Linuron	0.0040	U	ug/L	P362847	
		MCP	0.0020	UJ	ug/L	P362847	RPD
		Naproxen**	0.0080	UJ	ug/L	P362847	MS
		Primidone**	0.016		ug/L	P362847	
		Pyraclostrobin**	0.0020	UJ	ug/L	P362847	MS, RPD
		Triclopyr**	0.0040	UJ	ug/L	P362847	MS, RPD
2081051	EPA 200.7 Rev. 4.4	Barium	20.2		ug/L	P362970	
		Calcium	20.2		mg/L	P362970	
		Iron	310		ug/L	P362970	
		Magnesium	5.95		mg/L	P362970	
		Potassium	5.7		mg/L	P362970	
		Sodium	20.2		mg/L	P362970	

Field ID: G3SW0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081051	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P362970	
	EPA 200.8 Rev. 5.4	Aluminum	266		ug/L	P362970	
		Antimony	0.16	I	ug/L	P362970	
		Arsenic	1.28		ug/L	P362970	
		Boron**	45.0		ug/L	P362970	
		Cadmium	0.028	I	ug/L	P362970	
		Chromium	0.61	I	ug/L	P362970	
		Copper	0.63	I	ug/L	P362970	
		Lead	0.64		ug/L	P362970	
		Nickel	0.61	I	ug/L	P362970	
		Selenium	0.22	I	ug/L	P362970	
		Silver	0.010	U	ug/L	P362970	
		Thallium	0.10	U	ug/L	P362970	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for glyphosate could not be assessed due to high concentration of parameter in the spiked sample. J- Estimated value due to the reported result exceeding the calibration range. Result confirmed beyond holding time for glyphosate = 19 ug/L Q.

EPA 8321B: Refer to the narrative for an explanation of QC Codes.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: PEACE RIVER @ HERITAGE LANDING

Collection Date/Time: 04/24/2019 13:35

Field ID: G3SW0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081009	EPA 180.1 Rev. 2.0	Turbidity	9.4		NTU	P362880	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P363221	
	SM 2120 B	Color (true)	100		PCU	P362891	
	SM 2320 B-97	Total Alkalinity	68		mg CaCO3/L	P363360	
	SM 2540 C-97	TDS	193		mg/L	P363234	
	SM 2540 D-97	TSS	13		mg/L	P363124	
	SM 4500 F-C-97	Fluoride	0.54		mg F/L	P363364	
2081011	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P363136	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P363187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P363010	
	EPA 365.1 Rev. 2.0	Total-P	0.71		mg P/L	P363061	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P363083	
2081013	EPA 300.0 Rev. 2.1 dissolved	Sulfate	28		mg SO4/L	P363222	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.47		mg P/L	P362872	
2081050	EPA 8321B	Acesulfame K**	0.10	U	ug/L	P362987	
		2,4-D	0.010		ug/L	P362847	MS, RPD
		AMPA**	1.7		ug/L	P362987	
		Sucralose**	2.5		ug/L	P362987	
		Endothall**	0.25	U	ug/L	P362987	
		Acetaminophen**	0.0080	U	ug/L	P362847	
		Glufosinate**	0.10	U	ug/L	P362987	
		Glyphosate**	4.8		ug/L	P362987	
		Bentazon	0.0053		ug/L	P362847	MS
		Carbamazepine**	0.0064		ug/L	P362847	
		Diuron	0.0020	U	ug/L	P362847	
		Fenuron	0.016	U	ug/L	P362847	
		Fluridone**	0.0075		ug/L	P362847	
		Imazapyr**	0.11		ug/L	P362847	MS
		Hydrocodone**	0.0020	U	ug/L	P362847	
		Ibuprofen**	0.020	U	ug/L	P362847	MS, RPD
		Imidacloprid	0.024		ug/L	P362847	
		Linuron	0.0040	U	ug/L	P362847	
		MCPD	0.0020	U	ug/L	P362847	RPD
		Naproxen**	0.0080	U	ug/L	P362847	MS
		Primidone**	0.0092	I	ug/L	P362847	
		Pyraclostrobin**	0.0020	U	ug/L	P362847	MS, RPD
		Triclopyr**	0.0040	U	ug/L	P362847	MS, RPD
2081052	EPA 200.7 Rev. 4.4	Barium	19.2		ug/L	P362970	
		Calcium	23.5		mg/L	P362970	
		Iron	310		ug/L	P362970	
		Magnesium	9.24		mg/L	P362970	
		Potassium	5.9		mg/L	P362970	
		Sodium	24.3		mg/L	P362970	

Field ID: G3SW0051

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081052	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P362970	
	EPA 200.8 Rev. 5.4	Aluminum	242		ug/L	P362970	
		Antimony	0.15	I	ug/L	P362970	
		Arsenic	1.28		ug/L	P362970	
		Boron**	43.3		ug/L	P362970	
		Cadmium	0.034	I	ug/L	P362970	
		Chromium	0.70	I	ug/L	P362970	
		Copper	0.65	I	ug/L	P362970	
		Lead	0.51		ug/L	P362970	
		Nickel	0.68	I	ug/L	P362970	
		Selenium	0.23	I	ug/L	P362970	
		Silver	0.023	I	ug/L	P362970	
		Thallium	0.10	U	ug/L	P362970	

Ref. Method and Comment:

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

EPA 8321B: MS accuracy for glyphosate could not be assessed due to high concentration of parameter in the spiked sample.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: SCOTT LAKE @ SOUTH CENTRAL

Collection Date/Time: 04/24/2019 10:00

Field ID: G2SW0060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081014	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P362880	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P363221	
	SM 2120 B	Color (true)	17		PCU	P362891	
	SM 2320 B-97	Total Alkalinity	46		mg CaCO3/L	P363360	
	SM 2540 C-97	TDS	128		mg/L	P363234	
	SM 2540 D-97	TSS	19		mg/L	P363124	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P363364	
2081016	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P363136	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P363187	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363010	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P363061	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P363083	
2081018	EPA 300.0 Rev. 2.1 dissolved	Sulfate	9.2		mg SO4/L	P363222	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362872	

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: LAKE ISABELL CENTER

Collection Date/Time: 04/24/2019 12:15

Field ID: G4SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2081015	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P362880	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P363221	
	SM 2120 B	Color (true)	45		PCU	P362891	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P363360	
	SM 2540 C-97	TDS	145		mg/L	P363234	
	SM 2540 D-97	TSS	3	I	mg/L	P363124	
	SM 4500 F-C-97	Fluoride	0.097	I	mg F/L	P363364	
2081017	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P363136	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P363189	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P363010	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P363061	
	SM 5310 B-00	Organic Carbon	9.2		mg C/L	P363083	
2081019	EPA 300.0 Rev. 2.1 dissolved	Sulfate	39		mg SO4/L	P363222	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362872	

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: P362880

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362970

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: P362970

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 Rev. 2.1
Batch ID: P363221

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P363222

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363136

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P363187

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P363189

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P363010

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P363061

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362872

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

Reference Method: EPA 8321B
 Batch ID: P362847

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: P362987

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P362987

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: P362891

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P363360

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

Reference Method: SM 2540 C-97
Batch ID: P363234

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363124

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P363083

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: P362970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	105		P	85 - 115
Calcium	103		P	85 - 115
Iron	109		P	85 - 115
Magnesium	102		P	85 - 115
Potassium	103		P	85 - 115
Sodium	101		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.1		P	85 - 115
Antimony	97.0		P	85 - 115
Arsenic	99.9		P	85 - 115
Boron	97.6		P	85 - 115
Cadmium	99.5		P	85 - 115
Chromium	92.0		P	85 - 115
Copper	100		P	85 - 115
Lead	92.1		P	85 - 115
Nickel	98.7		P	85 - 115
Selenium	101		P	85 - 115
Silver	104		P	85 - 115
Thallium	94.8		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363221

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

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P363222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363136

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363187

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363189

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363010

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363061

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362872

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

Reference Method: EPA 8321B
Batch ID: P362847

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	59.0		P	40 - 150
Acetaminophen	101		P	30 - 150
Bentazon	81.5		P	30 - 150
Carbamazepine	102		P	40 - 150
Diuron	94.1		P	40 - 150
Fenuron	107		P	40 - 150
Fluridone	130		P	40 - 150
Hydrocodone	105		P	40 - 150
Ibuprofen	56.6		P	40 - 150
Imazapyr	85.6		P	40 - 150
Imidacloprid	108		P	40 - 150
Linuron	72.1		P	40 - 150
MCPP	73.1		P	40 - 150
Naproxen	42.4		P	40 - 150
Primidone	96.4		P	40 - 150
Pyraclostrobin	59.0		P	40 - 150
Triclopyr	48.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P362987

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	96.9		P	40 - 150
AMPA	97.2		P	40 - 150
Endothall	72.9		P	40 - 150
Glufosinate	107		P	40 - 150
Glyphosate	131		P	40 - 140
Sucralose	94.3		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P362891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P363360

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P363083

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080969	Barium	100	98.4	P/P	80 - 120
2080969	Calcium	105		P	80 - 120
2080969	Iron	105	104	P/P	80 - 120
2080969	Magnesium	105		P	80 - 120
2080969	Potassium	107		P	80 - 120
2080969	Sodium	106		P	80 - 120
2080969	Zinc	101	99.2	P/P	80 - 120
2081162	Barium	98.2		P	80 - 120
2081162	Calcium	101		P	80 - 120
2081162	Iron	101		P	80 - 120
2081162	Magnesium	106		P	80 - 120
2081162	Potassium	98.7		P	80 - 120
2081162	Zinc	107		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080969	Aluminum	96.7	96.9	P/P	80 - 120
2080969	Antimony	100	98.3	P/P	80 - 120
2080969	Arsenic	100	100	P/P	80 - 120
2080969	Boron	98.7	99.4	P/P	80 - 120
2080969	Cadmium	100	100	P/P	80 - 120
2080969	Chromium	88.6	87.3	P/P	80 - 120
2080969	Copper	95.5	95.4	P/P	80 - 120
2080969	Lead	93.1	92.9	P/P	80 - 120
2080969	Nickel	91.8	90.8	P/P	80 - 120
2080969	Selenium	99.1	99.9	P/P	80 - 120
2080969	Silver	102	101	P/P	80 - 120
2080969	Thallium	98.0	100	P/P	80 - 120
2081162	Aluminum	101		P	80 - 120
2081162	Antimony	101		P	80 - 120
2081162	Arsenic	102		P	80 - 120
2081162	Cadmium	101		P	80 - 120
2081162	Chromium	83.3		P	80 - 120
2081162	Copper	97.7		P	80 - 120
2081162	Lead	95.4		P	80 - 120
2081162	Nickel	89.4		P	80 - 120
2081162	Selenium	96.7		P	80 - 120
2081162	Silver	100		P	80 - 120
2081162	Thallium	98.1		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081008	Chloride	97.0		P	90 - 110
2081148	Chloride	100		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P363222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081008	Sulfate	98.6		P	90 - 110
2081148	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080979	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363187

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080980	Kjeldahl Nitrogen	104	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081017	Kjeldahl Nitrogen	96.2	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080978	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080997	Total-P	103	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081001	O-Phosphate-P	95.9	97.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P362847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081049	2,4-D	58.4	32.6	P/F	40 - 150
2081049	Acetaminophen	59.4	62.9	P/P	30 - 150
2081049	Bentazon	31.9	28.6	P/F	30 - 150
2081049	Carbamazepine	72.1	64.2	P/P	40 - 150
2081049	Diuron	60.4	53.8	P/P	40 - 150
2081049	Fenuron	96.6	125	P/P	40 - 150
2081049	Fluridone	132	111	P/P	40 - 150
2081049	Hydrocodone	72.1	81.3	P/P	40 - 150
2081049	Ibuprofen	52.2	35.2	P/F	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P362847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081049	Imazapyr	27.2	61.6	F/P	40 - 150
2081049	Imidacloprid	137	125	P/P	40 - 150
2081049	Linuron	46.3	42.3	P/P	40 - 150
2081049	MCP	85.5	58.4	P/P	40 - 150
2081049	Naproxen	28.3	24.1	F/F	40 - 150
2081049	Primidone	44.7	52.7	P/P	40 - 150
2081049	Pyraclostrobin	51.5	16.6	P/F	40 - 150
2081049	Triclopyr	52.8	20.1	P/F	40 - 150

Reference Method: EPA 8321B
Batch ID: P362987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081049	Acesulfame K	92.7	89.5	P/P	40 - 150
2081049	AMPA	71.6	69.4	P/P	40 - 150
2081049	Endothall	66.2	70.0	P/P	40 - 150
2081049	Glufosinate	85.4	93.3	P/P	40 - 150
2081049	Sucralose	85.8	80.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080993	Fluoride	97.9	100	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P363083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080928	Organic Carbon	101	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362880

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080995	Turbidity	1.19	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P362970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080969	Barium	1.71	Spike	P	0 - 20
2080969	Calcium	0.719	Spike	P	0 - 20
2080969	Iron	0.718	Spike	P	0 - 20
2080969	Magnesium	1.20	Spike	P	0 - 20
2080969	Potassium	0.904	Spike	P	0 - 20
2080969	Sodium	0.116	Spike	P	0 - 20
2080969	Zinc	1.93	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P362970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080969	Aluminum	0.261	Spike	P	0 - 20
2080969	Antimony	1.66	Spike	P	0 - 20
2080969	Arsenic	0.432	Spike	P	0 - 20
2080969	Boron	0.395	Spike	P	0 - 20
2080969	Cadmium	0.201	Spike	P	0 - 20
2080969	Chromium	1.39	Spike	P	0 - 20
2080969	Copper	0.0636	Spike	P	0 - 20
2080969	Lead	0.247	Spike	P	0 - 20
2080969	Nickel	1.10	Spike	P	0 - 20
2080969	Selenium	0.881	Spike	P	0 - 20
2080969	Silver	1.01	Spike	P	0 - 20
2080969	Thallium	1.95	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081008	Chloride	0.0353	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1 dissolved
Batch ID: P363222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081008	Sulfate	0.234	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080979	Ammonia-N	0.694	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363187

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080980	Kjeldahl Nitrogen	4.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081017	Kjeldahl Nitrogen	1.98	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080978	NO2NO3-N	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080997	Total-P	3.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081001	O-Phosphate-P	1.86	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P362847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081049	2,4-D	37.0	Spike	F	0 - 30
2081049	Acetaminophen	5.71	Spike	P	0 - 30
2081049	Bentazon	6.13	Spike	P	0 - 30
2081049	Carbamazepine	6.88	Spike	P	0 - 30
2081049	Diuron	11.4	Spike	P	0 - 30
2081049	Fenuron	25.7	Spike	P	0 - 30
2081049	Fluridone	12.2	Spike	P	0 - 30
2081049	Hydrocodone	11.9	Spike	P	0 - 30
2081049	Ibuprofen	38.9	Spike	F	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P362847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081049	Imazapyr	13.6	Spike	P	0 - 30
2081049	Imidacloprid	7.99	Spike	P	0 - 30
2081049	Linuron	9.00	Spike	P	0 - 30
2081049	MCP	37.7	Spike	F	0 - 30
2081049	Naproxen	16.1	Spike	P	0 - 30
2081049	Primidone	11.7	Spike	P	0 - 30
2081049	Pyraclostrobin	103	Spike	F	0 - 30
2081049	Triclopyr	89.8	Spike	F	0 - 30

Reference Method: EPA 8321B
Batch ID: P362987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081049	Acesulfame K	3.51	Spike	P	0 - 30
2081049	AMPA	0.694	Spike	P	0 - 30
2081049	Endothall	5.52	Spike	P	0 - 30
2081049	Glufosinate	8.91	Spike	P	0 - 30
2081049	Glyphosate	1.38	Spike	P	0 - 30
2081049	Sucralose	2.58	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P362891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080995	Color (true)	0.162	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080993	Total Alkalinity	2.57	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P363234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080994	TDS	1.63	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080993	Fluoride	1.95	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P363083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080928	Organic Carbon	0.571	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: 2081049
Field Sample ID: G3SW0042

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	64.8	P	30 - 160
EPA 8321B	Acetaminophen-d4	71.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	79.5	P	30 - 160
EPA 8321B	Diuron-d6	76.1	P	30 - 160
EPA 8321B	Endothall-d6	76.6	P	30 - 160
EPA 8321B	Endothall-d6	76.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	95.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	95.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	62.9	P	30 - 160
EPA 8321B	Primidone-d5	65.0	P	30 - 160
EPA 8321B	Sucralose-d6	111	P	30 - 160
EPA 8321B	Sucralose-d6	111	P	30 - 160

Lab Sample ID: 2081050
Field Sample ID: G3SW0051

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	53.6	P	30 - 160
EPA 8321B	Acetaminophen-d4	74.0	P	30 - 160
EPA 8321B	Carbamazepine-d10	89.1	P	30 - 160
EPA 8321B	Diuron-d6	83.1	P	30 - 160
EPA 8321B	Endothall-d6	62.6	P	30 - 160
EPA 8321B	Endothall-d6	62.6	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	99.0	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	99.0	P	30 - 160
EPA 8321B	Ibuprofen-d3	59.3	P	30 - 160
EPA 8321B	Primidone-d5	63.7	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160
EPA 8321B	Sucralose-d6	105	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91004

Included Lab Sample IDs: 2081012, 2081013, 2081018, 2081019

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.1	94.7	P/P	90 - 110
O-Phosphate-P	96.6	95.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91005

Included Lab Sample IDs: 2081008, 2081009, 2081014, 2081015

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

Reference Method: SM 2120 B

Run ID: A91012

Included Lab Sample IDs: 2081008, 2081009, 2081014, 2081015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91059

Included Lab Sample IDs: 2081010, 2081011, 2081016, 2081017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91089

Included Lab Sample IDs: 2081010, 2081011, 2081016, 2081017

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A91099

Included Lab Sample IDs: 2081051, 2081052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	103	105	P/P	90 - 110
Barium	105	104	P/P	90 - 110
Calcium	103	106	P/P	90 - 110
Calcium	106	106	P/P	90 - 110
Iron	104	106	P/P	90 - 110
Iron	106	105	P/P	90 - 110
Magnesium	104	106	P/P	90 - 110
Magnesium	106	106	P/P	90 - 110
Potassium	104	107	P/P	90 - 110
Potassium	107	106	P/P	90 - 110
Sodium	106	109	P/P	90 - 110
Sodium	109	109	P/P	90 - 110
Zinc	104	106	P/P	90 - 110
Zinc	106	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91100

Included Lab Sample IDs: 2081010, 2081011, 2081016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	105	P/P	90 - 110
Total-P	105	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91103

Included Lab Sample IDs: 2081017

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91105

Included Lab Sample IDs: 2081008, 2081009, 2081014, 2081015

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

Reference Method: EPA 300.0 Rev. 2.1 dissolved

Run ID: A91105

Included Lab Sample IDs: 2081012, 2081013, 2081018, 2081019

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91112

Included Lab Sample IDs: 2081010, 2081011, 2081016, 2081017

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

Reference Method: EPA 8321B

Run ID: A91120

Included Lab Sample IDs: 2081049, 2081050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	103	96.1	P/P	60 - 160
Endothall	70.8	77.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A91126

Included Lab Sample IDs: 2081049, 2081050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	60.6	79.2	P/P	60 - 160
Glufosinate	79.0	97.5	P/P	60 - 160
Glyphosate	91.3	113	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A91204

Included Lab Sample IDs: 2081008, 2081009, 2081014, 2081015

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

Reference Method: SM 4500 F-C-97

Run ID: A91204

Included Lab Sample IDs: 2081008, 2081009, 2081014, 2081015

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.1	P/P	90 - 110
Fluoride	99.1	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91214

Included Lab Sample IDs: 2081010, 2081011, 2081016, 2081017

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.6	P/P	90 - 110
Kjeldahl Nitrogen	99.4	99.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91215

Included Lab Sample IDs: 2081051, 2081052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	104	103	P/P	90 - 110
Antimony	102	102	P/P	90 - 110
Arsenic	102	100	P/P	90 - 110
Boron	106	105	P/P	90 - 110
Cadmium	102	104	P/P	90 - 110
Chromium	98.4	99.6	P/P	90 - 110
Lead	97.6	98.2	P/P	90 - 110
Nickel	97.4	98.2	P/P	90 - 110
Selenium	103	103	P/P	90 - 110
Silver	103	105	P/P	90 - 110
Thallium	92.7	94.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A91231

Included Lab Sample IDs: 2081049, 2081050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.7	99.5	P/P	50 - 150
Acetaminophen	103	111	P/P	60 - 160
Bentazon	101	89.5	P/P	50 - 160
Carbamazepine	120	119	P/P	60 - 150
Diuron	116	119	P/P	60 - 150
Fenuron	113	108	P/P	60 - 150
Fluridone	128	129	P/P	60 - 160
Hydrocodone	112	109	P/P	60 - 150
Ibuprofen	72.3	72.3	P/P	50 - 160
Imazapyr	106	108	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A91231

Included Lab Sample IDs: 2081049, 2081050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Imidacloprid	93.5	107	P/P	60 - 150
Linuron	84.7	73.0	P/P	60 - 150
MCP	79.9	77.0	P/P	50 - 150
Naproxen	95.1	85.4	P/P	50 - 160
Primidone	109	118	P/P	60 - 150
Pyraclostrobin	107	106	P/P	60 - 150
Triclopyr	88.3	86.0	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91286

Included Lab Sample IDs: 2081051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Thallium	95.3	98.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91334

Included Lab Sample IDs: 2081051, 2081052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	98.9	99.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A91344

Included Lab Sample IDs: 2081049, 2081050

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	104	102	P/P	60 - 160

* 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.

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
			LCS	SMP	MS	LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.19	
EPA 200.7 Rev. 4.4	Barium	105	100	98.4	98.2			1.71
	Calcium	103	105	101				0.719
	Iron	109	105	104	101			0.718
	Magnesium	102	105	106				1.20
	Potassium	103	98.7	107				0.904
	Sodium	101	106					0.116
	Zinc	105	101	99.2	107			1.93
EPA 200.8 Rev. 5.4	Aluminum	96.1	96.7	96.9	101			0.261
	Antimony	97.0	100	98.3	101			1.66
	Arsenic	99.9	100	100	102			0.432
	Boron	97.6	98.7	99.4				0.395
	Cadmium	99.5	100	100	101			0.201
	Chromium	92.0	88.6	87.3	83.3			1.39
	Copper	100	95.5	95.4	97.7			0.0636
	Lead	92.1	93.1	92.9	95.4			0.247
	Nickel	98.7	91.8	90.8	89.4			1.10
	Selenium	101	99.1	99.9	96.7			0.881
	Silver	104	102	101	100			1.01
	Thallium	94.8	98.0	100	98.1			1.95
EPA 300.0 Rev. 2.1	Chloride	99.3	97.0	100			0.0353	
EPA 300.0 Rev. 2.1 dissolved	Sulfate	98.7	98.6	100			0.234	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	101				0.694
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	104	95.2				4.61
	Kjeldahl Nitrogen	103	96.2	99.8				1.98
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	102				0.990
EPA 365.1 Rev. 2.0	Total-P	104	103	107				3.37
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	95.9	97.7				1.86
EPA 8321B	2,4-D	59.0	58.4	32.6				37.0
	Acesulfame K	96.9	92.7	89.5				3.51
	Acetaminophen	101	59.4	62.9				5.71
	AMPA	97.2	71.6	69.4				0.694
	Bentazon	81.5	31.9	28.6				6.13
	Carbamazepine	102	72.1	64.2				6.88
	Diuron	94.1	60.4	53.8				11.4
	Endothall	72.9	66.2	70.0				5.52
	Fenuron	107	96.6	125				25.7
	Fluridone	130	132	111				12.2
	Glufosinate	107	85.4	93.3				8.91
	Glyphosate	131						1.38
	Hydrocodone	105	72.1	81.3				11.9
	Ibuprofen	56.6	35.2	52.2				38.9
	Imazapyr	85.6	27.2	61.6				13.6
	Imidacloprid	108	137	125				7.99
	Linuron	72.1	46.3	42.3				9.00
	MCPP	73.1	58.4	85.5				37.7
	Naproxen	42.4	28.3	24.1				16.1
	Primidone	96.4	44.7	52.7				11.7
	Pyraclostrobin	59.0	51.5	16.6				103
	Sucralose	94.3	85.8	80.2				2.58
	Triclopyr	48.8	52.8	20.1				89.8
SM 2120 B	Color (true)	99.4					0.162	
SM 2320 B-97	Total Alkalinity	101					2.57	
SM 2540 C-97	TDS						1.63	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	97.6	97.9	100		1.95
SM 5310 B-00	Organic Carbon	99.4	101	100		0.571

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2081008, 2081009, 2081014, 2081015
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2081051, 2081052
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2081051, 2081052
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2081008, 2081009, 2081014, 2081015
EPA 300.0 Rev. 2.1 dissolved / E31780	Sulfate, dissolved, in filtered, aqueous matrices	2081012, 2081013, 2081018, 2081019
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2081010, 2081011, 2081016, 2081017
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2081010, 2081011, 2081016, 2081017
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2081010, 2081011, 2081016, 2081017
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2081010, 2081011, 2081016, 2081017
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2081012, 2081013, 2081018, 2081019
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2081049, 2081050
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2081049, 2081050
SM 2120 B / E31780	True Color measured at 450 nm	2081008, 2081009, 2081014, 2081015
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2081008, 2081009, 2081014, 2081015
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2081008, 2081009, 2081014, 2081015
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2081008, 2081009, 2081014, 2081015
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2081008, 2081009, 2081014, 2081015
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2081010, 2081011, 2081016, 2081017

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	04/25/2019			04/25/2019 18:32	Julia Storbeck	2081008, 2081009, 2081014, 2081015
EPA 200.7 Rev. 4.4	04/25/2019	04/29/2019 13:15	Alexander Thompson	04/30/2019 13:53	Betina Topolski	2081051
	04/25/2019	04/29/2019 13:15	Alexander Thompson	04/30/2019 14:12	Betina Topolski	2081052
EPA 200.8 Rev. 5.4	04/25/2019	04/29/2019 13:15	Alexander Thompson	05/02/2019 22:33	Robert K Palmer	2081051
	04/25/2019	04/29/2019 13:15	Alexander Thompson	05/02/2019 22:43	Robert K Palmer	2081052
	04/25/2019	04/29/2019 13:15	Alexander Thompson	05/07/2019 22:46	Robert K Palmer	2081051
	04/25/2019	04/29/2019 13:15	Alexander Thompson	05/09/2019 19:51	Robert K Palmer	2081051
	04/25/2019	04/29/2019 13:15	Alexander Thompson	05/09/2019 19:58	Robert K Palmer	2081052
EPA 300.0 Rev. 2.1	04/25/2019			05/01/2019 16:31	Lipi Saha	2081008
	04/25/2019			05/01/2019 17:19	Lipi Saha	2081009
	04/25/2019			05/01/2019 17:31	Lipi Saha	2081014
	04/25/2019			05/01/2019 17:44	Lipi Saha	2081015
EPA 300.0 Rev. 2.1 dissolved	04/25/2019			05/01/2019 20:20	Lipi Saha	2081012
	04/25/2019			05/01/2019 20:56	Lipi Saha	2081013
	04/25/2019			05/01/2019 21:08	Lipi Saha	2081018
	04/25/2019			05/01/2019 21:20	Lipi Saha	2081019
EPA 350.1 Rev. 2.0	04/25/2019			04/30/2019 13:06	Ping Hua	2081010
	04/25/2019			04/30/2019 13:08	Ping Hua	2081011
	04/25/2019			04/30/2019 13:09	Ping Hua	2081016
	04/25/2019			04/30/2019 13:11	Ping Hua	2081017
EPA 351.2 Rev. 2.0	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 10:34	Joseph Suarez	2081010
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 10:36	Joseph Suarez	2081011
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 10:38	Joseph Suarez	2081016
	04/25/2019	05/01/2019 11:45	Adrian Shelby	05/06/2019 11:10	Joseph Suarez	2081017
EPA 353.2 Rev. 2.0	04/25/2019			04/29/2019 11:23	Beverly Y. Sanders	2081010
	04/25/2019			04/29/2019 11:24	Beverly Y. Sanders	2081011
	04/25/2019			04/29/2019 11:25	Beverly Y. Sanders	2081016
	04/25/2019			04/29/2019 11:26	Beverly Y. Sanders	2081017
EPA 365.1 Rev. 2.0	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 15:02	Rosalyn Ballman	2081010
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 15:05	Rosalyn Ballman	2081011
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 15:06	Rosalyn Ballman	2081016
	04/25/2019	04/29/2019 13:45	Sima Feizi	04/30/2019 16:40	Rosalyn Ballman	2081017
EPA 365.1 Rev. 2.0 dissolved	04/25/2019			04/25/2019 16:08	Jhamieka S. Greenwood	2081012
	04/25/2019			04/25/2019 16:11	Jhamieka S. Greenwood	2081019
	04/25/2019			04/25/2019 16:32	Jhamieka S. Greenwood	2081018
	04/25/2019			04/25/2019 16:33	Jhamieka S. Greenwood	2081013
EPA 8321B	04/25/2019	04/30/2019 09:15	Rebecca Ware	04/30/2019 10:51	Rebecca Ware	2081049
	04/25/2019	04/30/2019 09:15	Rebecca Ware	04/30/2019 10:59	Rebecca Ware	2081050
	04/25/2019	04/30/2019 09:15	Rebecca Ware	04/30/2019 17:13	Rebecca Ware	2081049
	04/25/2019	04/30/2019 09:15	Rebecca Ware	04/30/2019 17:27	Rebecca Ware	2081050

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	04/25/2019	04/30/2019 09:15	Rebecca Ware	05/08/2019 16:18	Rebecca Ware	2081049
	04/25/2019	04/30/2019 09:15	Rebecca Ware	05/08/2019 16:29	Rebecca Ware	2081050
	04/25/2019	04/30/2019 14:00	Hoor Shaik	05/02/2019 23:07	Juyoung Kim	2081049
	04/25/2019	04/30/2019 14:00	Hoor Shaik	05/02/2019 23:41	Juyoung Kim	2081050
SM 2120 B	04/25/2019			04/25/2019 15:15	Blanca Fach	2081008
	04/25/2019			04/25/2019 15:16	Blanca Fach	2081009
	04/25/2019			04/25/2019 15:17	Blanca Fach	2081014
	04/25/2019			04/25/2019 15:18	Blanca Fach	2081015
SM 2320 B-97	04/25/2019			05/04/2019 09:59	Samantha Davila	2081008
	04/25/2019			05/04/2019 10:54	Samantha Davila	2081009
	04/25/2019			05/04/2019 11:06	Samantha Davila	2081014
	04/25/2019			05/04/2019 11:18	Samantha Davila	2081015
SM 2540 C-97	04/25/2019			04/29/2019 17:35	Mariam Hanna	2081008, 2081009, 2081014, 2081015
SM 2540 D-97	04/25/2019			04/29/2019 20:05	Mariam Hanna	2081008, 2081009, 2081014, 2081015
SM 4500 F-C-97	04/25/2019			05/04/2019 09:59	Samantha Davila	2081008
	04/25/2019			05/04/2019 10:54	Samantha Davila	2081009
	04/25/2019			05/04/2019 11:06	Samantha Davila	2081014
	04/25/2019			05/04/2019 11:18	Samantha Davila	2081015
SM 5310 B-00	04/25/2019			04/29/2019 23:30	Julia Storbeck	2081010
	04/25/2019			04/29/2019 23:42	Julia Storbeck	2081011
	04/25/2019			04/29/2019 23:54	Julia Storbeck	2081016
	04/25/2019			04/30/2019 00:06	Julia Storbeck	2081017