

Chemical Analysis Report

CEN-DIST-2019-08-23-02

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

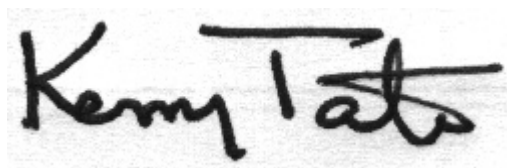
Event Description: **Dot / Cypress x2 / Jane**
Request ID: **RQ-2019-08-19-55**
Customer: **CEN-DIST**
Project ID: **SMP**

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

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 20-SEP-2019 11:25

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

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

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

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

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

Collection Date/Time: 08/22/2019 09:19

Field ID: G2CE0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114341	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P369632	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P369924	
		Sulfate	7.8		mg SO4/L	P369927	
	SM 2120 B	Color (true)	11	A	PCU	P369664	
	SM 2320 B-97	Total Alkalinity	65	A	mg CaCO3/L	P370025	
	SM 2540 C-97	TDS	87		mg/L	P370068	
	SM 2540 D-97	TSS	2	I	mg/L	P370073	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P370029	
2114342	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P370032	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P369657	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369936	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P370040	
2114343	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369898	
2114356	EPA 8321B	2,4-D	1.3		ug/L	P369653	
		Acesulfame K**	0.10	U	ug/L	P369616	
		AMPA**	1.0		ug/L	P369616	
		Sucralose**	0.063		ug/L	P369616	
		Acetaminophen**	0.0080	U	ug/L	P369653	
		Endothall**	0.25	U	ug/L	P369616	
		Acetamiprid**	0.0020	U	ug/L	P369653	
		Glufosinate**	0.10	U	ug/L	P369616	
		Glyphosate**	12		ug/L	P369616	
		Afidopyropen**	0.0020	UJ	ug/L	P369653	
		Bentazon	0.24		ug/L	P369653	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P369653	
		Carbamazepine**	8.0E-04	U	ug/L	P369653	
		Clothianidin**	0.0020	U	ug/L	P369653	
		Dinotefuran**	0.0050	I	ug/L	P369653	
		Diuron	0.16		ug/L	P369653	
		Fenuron	0.016	U	ug/L	P369653	
		Fluridone**	8.0E-04	U	ug/L	P369653	
		Imazapyr**	0.036		ug/L	P369653	
		Hydrocodone**	0.0020	U	ug/L	P369653	
		Ibuprofen**	0.020	U	ug/L	P369653	
		Imidacloprid	0.031		ug/L	P369653	
		Linuron	0.0040	U	ug/L	P369653	
		Mandestrobin**	0.0020	UJ	ug/L	P369653	
		MCP	0.0020	U	ug/L	P369653	MS
		Naproxen**	0.0080	U	ug/L	P369653	
		Primidone**	0.0040	U	ug/L	P369653	
		Pyraclostrobin**	0.0020	U	ug/L	P369653	
		Thiamethoxam**	0.0020	U	ug/L	P369653	

Field ID: G2CE0067

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114356	EPA 8321B	Tolfenpyrad**	0.0020	U	ug/L	P369653	
		Triclopyr**	0.0040	U	ug/L	P369653	

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 bentazon and imazapyr could not be assessed due to high concentration of parameter in the spiked sample. J - second source check standards for some analytes were not available for analysis.

Sample Location: Lake Jane @ Center

Collection Date/Time: 08/22/2019 09:55

Field ID: G4CE0152

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114344	EPA 180.1 Rev. 2.0	Turbidity	8.5	A	NTU	P369632	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P369924	
		Sulfate	15		mg SO4/L	P369927	
	SM 2120 B	Color (true)	39		PCU	P369663	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P370025	
	SM 2540 C-97	TDS	145		mg/L	P370068	
	SM 2540 D-97	TSS	9	I	mg/L	P370073	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P370029	
2114345	EPA 350.1 Rev. 2.0	Ammonia-N	0.098	Y	mg N/L	P370032	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4	Y	mg N/L	P369657	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.090	Y	mg N/L	P369937	
	EPA 365.1 Rev. 2.0	Total-P	0.15	Y	mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	9.0	Y	mg C/L	P370040	
2114346	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P369898	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: Cypress Creek @ SR 535

Collection Date/Time: 08/22/2019 10:40

Field ID: G4CE0008

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114335	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P369630	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P369924	
		Sulfate	10		mg SO4/L	P369927	
	SM 2120 B	Color (true)	170		PCU	P369661	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P370025	
	SM 2540 C-97	TDS	123		mg/L	P370067	
	SM 2540 D-97	TSS	2	I	mg/L	P370072	
	SM 4500 F-C-97	Fluoride	0.076	I	mg F/L	P370029	
2114337	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P370032	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P369657	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P369936	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P370040	
2114339	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P369898	
2114357	EPA 200.7 Rev. 4.4	Barium	6.7		ug/L	P369772	
		Calcium	9.17		mg/L	P369772	
		Iron	110	I	ug/L	P369772	
		Magnesium	3.68		mg/L	P369772	
		Potassium	5.2		mg/L	P369772	
		Sodium	17.9		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Aluminum	26		ug/L	P369772	
		Antimony	0.050	U	ug/L	P369772	
		Arsenic	0.57		ug/L	P369772	
		Boron**	38.9		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.40	U	ug/L	P369772	
		Copper	0.40	U	ug/L	P369772	
		Lead	0.20	U	ug/L	P369772	
		Nickel	0.50	U	ug/L	P369772	
		Selenium	0.20	U	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	
		Thallium	0.10	U	ug/L	P369772	

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: Upper Cypress Creek @ Jacaranda

Collection Date/Time: 08/22/2019 11:00

Field ID: G4CE0157

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2114336	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P369630	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P369924	
		Sulfate	15		mg SO4/L	P369927	
		Color (true)	150		PCU	P369661	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P370025	
	SM 2540 C-97	TDS	132	A	mg/L	P370068	
	SM 2540 D-97	TSS	2	IA	mg/L	P370073	
	SM 4500 F-C-97	Fluoride	0.092	I	mg F/L	P370029	
2114338	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P370032	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P369657	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P369936	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P369796	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P370040	
2114340	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P369898	
2114358	EPA 200.7 Rev. 4.4	Barium	8.1		ug/L	P369772	
		Calcium	8.76		mg/L	P369772	
		Iron	110	I	ug/L	P369772	
		Magnesium	4.07		mg/L	P369772	
		Potassium	6.4		mg/L	P369772	
		Sodium	18.7		mg/L	P369772	
		Zinc	5.0	U	ug/L	P369772	
	EPA 200.8 Rev. 5.4	Aluminum	34		ug/L	P369772	
		Antimony	0.050	U	ug/L	P369772	
		Arsenic	0.66		ug/L	P369772	
		Boron**	41.4		ug/L	P369772	
		Cadmium	0.020	U	ug/L	P369772	
		Chromium	0.40	U	ug/L	P369772	
		Copper	0.68	I	ug/L	P369772	
		Lead	0.21	I	ug/L	P369772	
		Nickel	0.50	U	ug/L	P369772	
		Selenium	0.20	U	ug/L	P369772	
		Silver	0.010	U	ug/L	P369772	
		Thallium	0.10	U	ug/L	P369772	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 7870

Event(s)

CEN-DIST-2019-08-23-02

Job(s)

TLH-2019-08-23-38

Sample(s)

2114345

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with sulfuric acid.
H2SO4 Lot# 8274050 | Expiration Date: 10/01/19
Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 8/27/2019

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369630

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369632

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369772

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: P369772

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: P369924

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370032

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369936

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369937

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369796

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369898

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

Reference Method: EPA 8321B
Batch ID: P369616

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: EPA 8321B
Batch ID: P369653

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
Acetaminophen	0.0080	U	ug/L
Acetamiprid	0.0020	U	ug/L
Afidopyropen	0.0020	U	ug/L
Bentazon	8.0E-04	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P369653

Component	Result	Code	Units
Benzovindiflupyr	0.0020	U	ug/L
Carbamazepine	8.0E-04	U	ug/L
Clothianidin	0.0020	U	ug/L
Dinotefuran	0.0020	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
Mandestrobin	0.0020	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
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2120 B
Batch ID: P369661

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P369663

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P369664

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370025

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

Reference Method: SM 2540 C-97
Batch ID: P370067

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P370068

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370072

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370073

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P370040

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: P369772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	106		P	80 - 120
Iron	107		P	85 - 115
Magnesium	113		P	85 - 115
Potassium	105		P	80 - 120
Sodium	104		P	80 - 120
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.7		P	85 - 115
Antimony	96.8		P	85 - 115
Arsenic	102		P	85 - 115
Boron	99.7		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	96.0		P	85 - 115
Copper	99.9		P	85 - 115
Lead	95.1		P	85 - 115
Nickel	99.3		P	85 - 115
Selenium	109		P	85 - 115
Silver	99.5		P	85 - 115
Thallium	98.4		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369924

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.6		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369936

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369937

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	90.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369898

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

Reference Method: EPA 8321B
Batch ID: P369616

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	95.2		P	40 - 150
AMPA	140		P	40 - 150
Endothall	95.9		P	40 - 150
Glufosinate	113		P	40 - 150
Glyphosate	128		P	40 - 140
Sucralose	75.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P369653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	119		P	40 - 160
Acetaminophen	74.9		P	30 - 160
Acetamiprid	82.1		P	40 - 160
Afidopyropen	87.0		P	40 - 160
Bentazon	91.2		P	30 - 160
Benzovindiflupyr	75.2		P	40 - 160
Carbamazepine	78.4		P	40 - 160
Clothianidin	78.0		P	40 - 160
Dinotefuran	82.9		P	40 - 160
Diuron	79.1		P	40 - 160
Fenuron	90.5		P	40 - 160
Fluridone	90.2		P	40 - 160
Hydrocodone	79.3		P	40 - 160
Ibuprofen	86.5		P	30 - 160
Imazapyr	95.6		P	40 - 160
Imidacloprid	86.8		P	40 - 160
Linuron	64.9		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P369653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Mandestrobin	77.1		P	40 - 160
MCPD	144		P	40 - 160
Naproxen	84.0		P	40 - 160
Primidone	78.5		P	40 - 160
Pyraclostrobin	74.5		P	30 - 160
Thiamethoxam	90.7		P	40 - 160
Tolfenpyrad	49.7		P	40 - 160
Triclopyr	102		P	30 - 160

Reference Method: SM 2120 B
Batch ID: P369661

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P369663

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

Reference Method: SM 2120 B
Batch ID: P369664

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

Reference Method: SM 2320 B-97
Batch ID: P370025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370040

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114357	Barium	103	102	P/P	80 - 120
2114357	Calcium	106		P	80 - 120
2114357	Iron	107	105	P/P	80 - 120
2114357	Magnesium	110	106	P/P	80 - 120
2114357	Potassium	106		P	80 - 120
2114357	Sodium	103		P	80 - 120
2114357	Zinc	105	104	P/P	80 - 120
2114481	Barium	101		P	80 - 120
2114481	Calcium	103		P	80 - 120
2114481	Iron	105		P	80 - 120
2114481	Magnesium	104		P	80 - 120
2114481	Potassium	105		P	80 - 120
2114481	Sodium	99.0		P	80 - 120
2114481	Zinc	103		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114357	Aluminum	97.2	96.8	P/P	80 - 120
2114357	Antimony	97.7	95.9	P/P	80 - 120
2114357	Arsenic	99.9	98.3	P/P	80 - 120
2114357	Boron	103	100	P/P	80 - 120
2114357	Cadmium	97.6	97.3	P/P	80 - 120
2114357	Chromium	95.9	93.1	P/P	80 - 120
2114357	Copper	98.6	96.7	P/P	80 - 120
2114357	Lead	97.4	96.8	P/P	80 - 120
2114357	Nickel	97.2	95.4	P/P	80 - 120
2114357	Selenium	105	104	P/P	80 - 120
2114357	Silver	99.5	97.6	P/P	80 - 120
2114357	Thallium	106	105	P/P	80 - 120
2114481	Aluminum	100		P	80 - 120
2114481	Antimony	99.4		P	80 - 120
2114481	Arsenic	102		P	80 - 120
2114481	Boron	106		P	80 - 120
2114481	Cadmium	100		P	80 - 120
2114481	Chromium	91.1		P	80 - 120
2114481	Copper	97.0		P	80 - 120
2114481	Lead	99.3		P	80 - 120
2114481	Nickel	95.1		P	80 - 120
2114481	Selenium	105		P	80 - 120
2114481	Silver	99.6		P	80 - 120
2114481	Thallium	107		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113658	Chloride	104		P	90 - 110
2114199	Chloride	104		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113658	Sulfate	106		P	90 - 110
2114199	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114201	Ammonia-N	97.5	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114342	Kjeldahl Nitrogen	93.7	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2112824	NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114345	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114388	Total-P	91.8	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114203	O-Phosphate-P	96.2	97.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P369616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113575	Acesulfame K	88.8	91.5	P/P	40 - 150
2113575	AMPA	86.0	94.9	P/P	40 - 150
2113575	Endothall	86.7	89.2	P/P	40 - 150
2113575	Glufosinate	86.6	95.0	P/P	40 - 150
2113575	Glyphosate	93.5	94.9	P/P	40 - 140
2113575	Sucralose	77.3	72.4	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P369653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113573	2,4-D	148	157	P/P	40 - 160
2113573	Acetaminophen	79.6	81.7	P/P	30 - 160
2113573	Acetamiprid	88.9	93.5	P/P	40 - 160
2113573	Afidopyropen	99.8	106	P/P	40 - 160
2113573	Benzovindiflupyr	85.5	86.8	P/P	40 - 160
2113573	Carbamazepine	80.2	82.7	P/P	40 - 160
2113573	Clothianidin	92.6	101	P/P	40 - 160
2113573	Dinotefuran	113	108	P/P	40 - 160
2113573	Diuron	71.9	76.8	P/P	40 - 160
2113573	Fenuron	82.3	85.6	P/P	40 - 160
2113573	Fluridone	80.3	86.2	P/P	40 - 160
2113573	Hydrocodone	82.4	92.5	P/P	40 - 160
2113573	Ibuprofen	105	103	P/P	30 - 160
2113573	Imidacloprid	159	159	P/P	40 - 160
2113573	Linuron	55.5	61.0	P/P	40 - 160
2113573	Mandestrobin	73.0	76.1	P/P	40 - 160
2113573	MCCP	189	201	F/F	40 - 160
2113573	Naproxen	86.4	108	P/P	40 - 160
2113573	Primidone	91.8	96.7	P/P	40 - 160
2113573	Pyraclostrobin	81.6	81.7	P/P	30 - 160
2113573	Thiamethoxam	141	135	P/P	40 - 160
2113573	Tolfenpyrad	67.7	69.6	P/P	40 - 160
2113573	Triclopyr	127	117	P/P	30 - 160

Reference Method: SM 4500 F-C-97
Batch ID: P370029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114341	Fluoride	95.6	96.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114328	Organic Carbon	96.2	95.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114415	Turbidity	1.83	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114344	Turbidity	5.29	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114357	Barium	0.879	Spike	P	0 - 20
2114357	Calcium	0.224	Spike	P	0 - 20
2114357	Iron	2.36	Spike	P	0 - 20
2114357	Magnesium	1.95	Spike	P	0 - 20
2114357	Potassium	0.697	Spike	P	0 - 20
2114357	Sodium	0.146	Spike	P	0 - 20
2114357	Zinc	1.16	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114357	Aluminum	0.415	Spike	P	0 - 20
2114357	Antimony	1.79	Spike	P	0 - 20
2114357	Arsenic	1.63	Spike	P	0 - 20
2114357	Boron	1.46	Spike	P	0 - 20
2114357	Cadmium	0.326	Spike	P	0 - 20
2114357	Chromium	2.98	Spike	P	0 - 20
2114357	Copper	2.00	Spike	P	0 - 20
2114357	Lead	0.681	Spike	P	0 - 20
2114357	Nickel	1.85	Spike	P	0 - 20
2114357	Selenium	1.31	Spike	P	0 - 20
2114357	Silver	1.98	Spike	P	0 - 20
2114357	Thallium	1.47	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113658	Chloride	0.382	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113658	Sulfate	0.258	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114201	Ammonia-N	0.167	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114342	Kjeldahl Nitrogen	2.84	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2112824	NO2NO3-N	0.331	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114345	NO2NO3-N	0.342	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114388	Total-P	2.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114203	O-Phosphate-P	0.757	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P369616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113575	Acesulfame K	2.96	Spike	P	0 - 30
2113575	AMPA	9.92	Spike	P	0 - 30

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P369616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113575	Endothall	2.85	Spike	P	0 - 30
2113575	Glufosinate	9.24	Spike	P	0 - 30
2113575	Glyphosate	1.50	Spike	P	0 - 30
2113575	Sucralose	6.44	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P369653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113573	2,4-D	3.76	Spike	P	0 - 30
2113573	Acetaminophen	2.11	Spike	P	0 - 30
2113573	Acetamiprid	5.05	Spike	P	0 - 30
2113573	Afidopyropen	6.02	Spike	P	0 - 30
2113573	Bentazon	1.34	Spike	P	0 - 30
2113573	Benzovindiflupyr	1.58	Spike	P	0 - 30
2113573	Carbamazepine	3.04	Spike	P	0 - 30
2113573	Clothianidin	8.89	Spike	P	0 - 30
2113573	Dinotefuran	3.94	Spike	P	0 - 30
2113573	Diuron	6.21	Spike	P	0 - 30
2113573	Fenuron	3.92	Spike	P	0 - 30
2113573	Fluridone	5.15	Spike	P	0 - 30
2113573	Hydrocodone	11.5	Spike	P	0 - 30
2113573	Ibuprofen	2.29	Spike	P	0 - 30
2113573	Imazapyr	2.15	Spike	P	0 - 30
2113573	Imidacloprid	0.140	Spike	P	0 - 30
2113573	Linuron	9.49	Spike	P	0 - 30
2113573	Mandestrobin	4.10	Spike	P	0 - 30
2113573	MCP	5.70	Spike	P	0 - 30
2113573	Naproxen	22.5	Spike	P	0 - 30
2113573	Primidone	5.21	Spike	P	0 - 30
2113573	Pyraclostrobin	0.111	Spike	P	0 - 30
2113573	Thiamethoxam	4.53	Spike	P	0 - 30
2113573	Tolfenpyrad	2.84	Spike	P	0 - 30
2113573	Triclopyr	7.97	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P369661

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114198	Color (true)	2.72	Sample	P	0 - 20

Reference Method: SM 2120 B

Batch ID: P369663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114224	Color (true)	7.06	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P369664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114341	Color (true)	4.53	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P370025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114341	Total Alkalinity	0.390	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P370067

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114199	TDS	1.39	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P370068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114336	TDS	1.52	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P370029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114341	Fluoride	0.516	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P370040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114328	Organic Carbon	0.709	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: 2114356
Field Sample ID: G2CE0067

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	143	P	30 - 160
EPA 8321B	Acetaminophen-d4	85.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	86.4	P	30 - 160
EPA 8321B	Diuron-d6	91.7	P	30 - 160
EPA 8321B	Endothall-d6	104	P	30 - 160
EPA 8321B	Endothall-d6	104	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	121	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	121	P	30 - 160
EPA 8321B	Ibuprofen-d3	102	P	30 - 160
EPA 8321B	Primidone-d5	106	P	30 - 160
EPA 8321B	Sucralose-d6	79.3	P	30 - 160
EPA 8321B	Sucralose-d6	79.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93768

Included Lab Sample IDs: 2114335, 2114336, 2114341, 2114344

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

Reference Method: SM 2120 B

Run ID: A93782

Included Lab Sample IDs: 2114335, 2114336, 2114341, 2114344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	101	103	P/P	90 - 115
Color (true)	103	102	P/P	90 - 115
Color (true)	99.9	99.1	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93818

Included Lab Sample IDs: 2114337, 2114338, 2114342, 2114345

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	98.4	P/P	90 - 110
Kjeldahl Nitrogen	95.7	94.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93819

Included Lab Sample IDs: 2114335, 2114336, 2114341, 2114344

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	103	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	105	104	P/P	90 - 110
Sulfate	105	105	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A93824

Included Lab Sample IDs: 2114356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	140	110	P/P	60 - 160
Endothall	96.1	97.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A93825

Included Lab Sample IDs: 2114356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	94.0	93.2	P/P	60 - 160
Glufosinate	92.9	92.6	P/P	60 - 160
Glyphosate	96.4	94.7	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93860

Included Lab Sample IDs: 2114345

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

Reference Method: EPA 8321B

Run ID: A93861

Included Lab Sample IDs: 2114356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	60.7	80.5	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93865

Included Lab Sample IDs: 2114339, 2114340, 2114343, 2114346

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.9	P/P	90 - 110
O-Phosphate-P	99.9	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93877

Included Lab Sample IDs: 2114337, 2114338, 2114342

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93888

Included Lab Sample IDs: 2114337, 2114338, 2114342, 2114345

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93901

Included Lab Sample IDs: 2114357, 2114358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	101	P/P	95 - 105
Barium	101	100	P/P	90 - 110
Calcium	102	102	P/P	90 - 110
Calcium	102	102	P/P	95 - 105
Iron	101	102	P/P	90 - 110
Iron	101	101	P/P	95 - 105
Magnesium	101	102	P/P	90 - 110
Magnesium	101	101	P/P	95 - 105
Potassium	101	102	P/P	95 - 105
Potassium	102	102	P/P	90 - 110
Sodium	101	100	P/P	90 - 110
Sodium	103	101	P/P	95 - 105
Zinc	98.2	99.5	P/P	95 - 105
Zinc	99.5	98.7	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A93928

Included Lab Sample IDs: 2114335, 2114336, 2114341, 2114344

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

Reference Method: SM 4500 F-C-97

Run ID: A93928

Included Lab Sample IDs: 2114335, 2114336, 2114341, 2114344

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93933

Included Lab Sample IDs: 2114337, 2114338, 2114342, 2114345

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

Reference Method: SM 5310 B-00

Run ID: A93938

Included Lab Sample IDs: 2114337, 2114338, 2114342, 2114345

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

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2114356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	109	P/P	50 - 150
Acetaminophen	96.3	88.4	P/P	60 - 160
Acetamiprid	106	111	P/P	50 - 150
Afidopyropen	114	108	P/P	50 - 150
Bentazon	93.9	93.8	P/P	50 - 160
Benzovindiflupyr	107	101	P/P	50 - 150
Carbamazepine	113	109	P/P	60 - 150
Clothianidin	103	105	P/P	60 - 150
Dinotefuran	96.7	99.9	P/P	50 - 150
Diuron	103	105	P/P	60 - 150
Fenuron	110	91.7	P/P	60 - 150
Fluridone	128	125	P/P	60 - 160
Hydrocodone	111	112	P/P	60 - 150
Ibuprofen	89.2	88.8	P/P	50 - 160
Imazapyr	84.1	89.5	P/P	50 - 150
Imidacloprid	96.7	102	P/P	60 - 150
Linuron	96.0	102	P/P	60 - 150
Mandestrobin	114	112	P/P	50 - 150
MCPP	106	108	P/P	50 - 150
Naproxen	93.8	105	P/P	50 - 160
Primidone	98.5	106	P/P	60 - 150
Pyraclostrobin	117	115	P/P	60 - 150
Thiamethoxam	107	107	P/P	50 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A94124

Included Lab Sample IDs: 2114356

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Tolfenpyrad	124	121	P/P	60 - 150
Triclopyr	103	116	P/P	50 - 150

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94206

Included Lab Sample IDs: 2114357, 2114358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.9	99.1	P/P	90 - 110
Antimony	95.4	95.7	P/P	90 - 110
Arsenic	103	101	P/P	90 - 110
Boron	98.7	102	P/P	90 - 110
Cadmium	99.2	99.7	P/P	90 - 110
Copper	102	101	P/P	90 - 110
Lead	96.9	96.8	P/P	90 - 110
Nickel	101	100	P/P	90 - 110
Silver	98.3	98.1	P/P	90 - 110
Thallium	94.0	94.3	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94208

Included Lab Sample IDs: 2114357, 2114358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	99.4	99.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94209

Included Lab Sample IDs: 2114357, 2114358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Selenium	104	106	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.83	
	Turbidity						5.29	
EPA 200.7 Rev. 4.4	Barium	104	103	102	101			0.879
	Calcium	106	106	103				0.224
	Iron	107	107	105	105			2.36
	Magnesium	113	110	106	104			1.95
	Potassium	105	106	105				0.697
	Sodium	104	103	99.0				0.146
	Zinc	102	105	104	103			1.16
EPA 200.8 Rev. 5.4	Aluminum	97.7	97.2	96.8	100			0.415
	Antimony	96.8	97.7	95.9	99.4			1.79
	Arsenic	102	99.9	98.3	102			1.63
	Boron	99.7	103	100	106			1.46
	Cadmium	98.2	97.6	97.3	100			0.326
	Chromium	96.0	95.9	93.1	91.1			2.98
	Copper	99.9	98.6	96.7	97.0			2.00
	Lead	95.1	97.4	96.8	99.3			0.681
	Nickel	99.3	97.2	95.4	95.1			1.85
	Selenium	109	105	104	105			1.31
	Silver	99.5	99.5	97.6	99.6			1.98
	Thallium	98.4	106	105	107			1.47
EPA 300.0 Rev. 2.1	Chloride	102	104	104			0.382	
	Sulfate	103	106	103			0.258	
EPA 350.1 Rev. 2.0	Ammonia-N	96.1	97.5	97.3				0.167
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.6	93.7	97.2				2.84
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.0	97.5				0.331
	NO ₂ NO ₃ -N	101	101	102				0.342
EPA 365.1 Rev. 2.0	Total-P	90.6	91.8	95.5				2.81
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.2	97.1				0.757
EPA 8321B	2,4-D	119	148	157				3.76
	Acesulfame K	95.2	88.8	91.5				2.96
	Acetaminophen	74.9	79.6	81.7				2.11
	Acetamiprid	82.1	88.9	93.5				5.05
	Afidopyropen	87.0	99.8	106				6.02
	AMPA	140	86.0	94.9				9.92
	Bentazon	91.2						1.34
	Benzovindiflupyr	75.2	85.5	86.8				1.58
	Carbamazepine	78.4	80.2	82.7				3.04
	Clothianidin	78.0	92.6	101				8.89
	Dinotefuran	82.9	113	108				3.94
	Diuron	79.1	71.9	76.8				6.21
	Endothall	95.9	86.7	89.2				2.85
	Fenuron	90.5	82.3	85.6				3.92
	Fluridone	90.2	80.3	86.2				5.15
	Glufosinate	113	86.6	95.0				9.24
	Glyphosate	128	93.5	94.9				1.50
	Hydrocodone	79.3	82.4	92.5				11.5
	Ibuprofen	86.5	105	103				2.29
	Imazapyr	95.6						2.15
	Imidacloprid	86.8	159	159				0.140
	Linuron	64.9	55.5	61.0				9.49
	Mandestrobin	77.1	73.0	76.1				4.10
	MCPP	144	189	201				5.70
	Naproxen	84.0	86.4	108				22.5

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 8321B	Primidone	78.5	91.8	96.7		5.21
	Pyraclostrobin	74.5	81.6	81.7		0.111
	Sucralose	75.2	77.3	72.4		6.44
	Thiamethoxam	90.7	141	135		4.53
	Tolfenpyrad	49.7	67.7	69.6		2.84
	Triclopyr	102	127	117		7.97
SM 2120 B	Color (true)	101			2.72	
	Color (true)	103			7.06	
	Color (true)	103			4.53	
SM 2320 B-97	Total Alkalinity	104			0.390	
SM 2540 C-97	TDS				1.39	
	TDS				1.52	
SM 4500 F-C-97	Fluoride	97.1	95.6	96.1		0.516
SM 5310 B-00	Organic Carbon	97.0	96.2	95.1		0.709

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2114335, 2114336, 2114341, 2114344
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2114357, 2114358
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2114357, 2114358
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2114335, 2114336, 2114341, 2114344
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2114335, 2114336, 2114341, 2114344
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2114337, 2114338, 2114342, 2114345
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2114337, 2114338, 2114342, 2114345
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2114337, 2114338, 2114342, 2114345
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2114337, 2114338, 2114342, 2114345
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2114339, 2114340, 2114343, 2114346
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2114356
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2114356
SM 2120 B / E31780	True Color measured at 450 nm	2114335, 2114336, 2114341, 2114344
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2114335, 2114336, 2114341, 2114344
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2114335, 2114336, 2114341, 2114344
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2114335, 2114336, 2114341, 2114344
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2114335, 2114336, 2114341, 2114344
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2114337, 2114338, 2114342, 2114345

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/23/2019			08/23/2019 17:45	Samantha Davila	2114335, 2114336, 2114341, 2114344
EPA 200.7 Rev. 4.4	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 09:26	Alexander Thompson	2114357
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	08/29/2019 10:15	Alexander Thompson	2114358
EPA 200.8 Rev. 5.4	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 01:34	Robert K Palmer	2114358
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/13/2019 01:54	Robert K Palmer	2114357
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 05:05	Robert K Palmer	2114358
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/14/2019 05:17	Robert K Palmer	2114357
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/15/2019 03:14	Robert K Palmer	2114358
	08/23/2019	08/27/2019 17:45	Elliott D. Healy	09/15/2019 03:26	Robert K Palmer	2114357
EPA 300.0 Rev. 2.1	08/23/2019			08/28/2019 22:51	Jhamieka S. Greenwood	2114335
	08/23/2019			08/28/2019 23:03	Jhamieka S. Greenwood	2114336
	08/23/2019			08/28/2019 23:16	Jhamieka S. Greenwood	2114341
	08/23/2019			08/28/2019 23:52	Jhamieka S. Greenwood	2114344
EPA 350.1 Rev. 2.0	08/23/2019			08/30/2019 14:16	Ping Hua	2114337
	08/23/2019			08/30/2019 14:17	Ping Hua	2114338
	08/23/2019			08/30/2019 14:19	Ping Hua	2114342
	08/23/2019			08/30/2019 14:20	Ping Hua	2114345
EPA 351.2 Rev. 2.0	08/23/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:34	Julia Storbeck	2114342
	08/23/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:49	Julia Storbeck	2114337
	08/23/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:51	Julia Storbeck	2114338
	08/23/2019	08/26/2019 12:50	Sima Feizi	08/26/2019 21:52	Julia Storbeck	2114345
EPA 353.2 Rev. 2.0	08/23/2019			08/29/2019 12:40	Beverly Y. Sanders	2114337
	08/23/2019			08/29/2019 12:41	Beverly Y. Sanders	2114338
	08/23/2019			08/29/2019 12:42	Beverly Y. Sanders	2114342
	08/23/2019			08/29/2019 12:49	Beverly Y. Sanders	2114345
EPA 365.1 Rev. 2.0	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 11:19	Lipi Saha	2114345
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 14:40	Lipi Saha	2114337
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 14:41	Lipi Saha	2114338
	08/23/2019	08/28/2019 09:14	Joseph Suarez	08/29/2019 14:42	Lipi Saha	2114342
EPA 365.1 Rev. 2.0 dissolved	08/23/2019			08/23/2019 14:47	Lipi Saha	2114339
	08/23/2019			08/23/2019 14:48	Lipi Saha	2114340
	08/23/2019			08/23/2019 14:49	Lipi Saha	2114343
	08/23/2019			08/23/2019 14:54	Lipi Saha	2114346
EPA 8321B	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/26/2019 17:16	Rebecca Ware	2114356
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/27/2019 14:00	Rebecca Ware	2114356
	08/23/2019	08/26/2019 09:30	Rebecca Ware	08/28/2019 18:40	Rebecca Ware	2114356
	08/23/2019	08/27/2019 13:30	Hoor Shaik	08/30/2019 17:45	Juyoung Kim	2114356
	08/23/2019	08/27/2019 13:30	Hoor Shaik	09/04/2019 23:04	Juyoung Kim	2114356
SM 2120 B	08/23/2019			08/23/2019 18:11	Madeline Funaro	2114336
	08/23/2019			08/23/2019 18:36	Madeline Funaro	2114344

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	08/23/2019			08/23/2019 18:41	Madeline Funaro	2114341
	08/23/2019			08/23/2019 18:50	Madeline Funaro	2114335
SM 2320 B-97	08/23/2019			08/30/2019 05:28	Dale L. Simmons	2114341
	08/23/2019			08/30/2019 06:29	Dale L. Simmons	2114335
	08/23/2019			08/30/2019 06:40	Dale L. Simmons	2114336
	08/23/2019			08/30/2019 06:53	Dale L. Simmons	2114344
	08/23/2019			08/28/2019 14:52	Yijie Li	2114335, 2114336, 2114341, 2114344
SM 2540 C-97	08/23/2019			08/28/2019 14:52	Yijie Li	2114335, 2114336, 2114341, 2114344
SM 2540 D-97	08/23/2019			08/30/2019 05:18	Dale L. Simmons	2114341
SM 4500 F-C-97	08/23/2019			08/30/2019 06:29	Dale L. Simmons	2114335
	08/23/2019			08/30/2019 06:40	Dale L. Simmons	2114336
	08/23/2019			08/30/2019 06:53	Dale L. Simmons	2114344
	08/23/2019			08/30/2019 22:33	Madeline Funaro	2114337
SM 5310 B-00	08/23/2019			08/30/2019 22:47	Madeline Funaro	2114338
	08/23/2019			08/30/2019 23:01	Madeline Funaro	2114342
	08/23/2019			08/30/2019 23:15	Madeline Funaro	2114345