

Chemical Analysis Report

CEN-DIST-2019-12-06-01

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

Event Description: **Hatch Drain / Cypress**
Request ID: **RQ-2019-12-02-53**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 30-DEC-2019 08:30



Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

A - Value reported is the mean of two or more determinations.
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value and/or the analysis did not meet established quality control criteria.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
V - Analyte was detected in both sample and method blank.
X - Too few individuals to calculate SCI value.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Lake Hatchineha Drain downstream of drainage field

Collection Date/Time: 12/05/2019 10:57

Field ID: G4CE0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2141512	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P375364	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P375657	
		Sulfate	11		mg SO4/L	P375660	
	SM 2120 B	Color (true)	90		PCU	P375450	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P375503	
	SM 2540 C-97	TDS	96		mg/L	P376056	
	SM 2540 D-97	TSS	8	I	mg/L	P376061	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P375505	
2141513	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P375865	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P375601	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P375464	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P375614	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P375517	
2141514	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P375382	
2141522	EPA 8321B	2,4-D	0.0095		ug/L	P375428	
		Acesulfame K**	0.10	U	ug/L	P375521	MS
		AMPA**	0.16	I	ug/L	P375521	
		Sucralose**	0.093		ug/L	P375521	
		Acetaminophen**	0.0080	U	ug/L	P375428	
		Acetamiprid**	0.0020	U	ug/L	P375428	
		Endothall**	0.25	U	ug/L	P375521	
		Glufosinate**	0.10	U	ug/L	P375521	
		Glyphosate**	0.10	U	ug/L	P375521	
		Afidopyropen**	0.0020	UJ	ug/L	P375428	
		Bentazon	0.011		ug/L	P375428	
		Benzovindiflupyr**	0.0020	UJ	ug/L	P375428	
		Carbamazepine**	8.0E-04	U	ug/L	P375428	
		Clothianidin**	0.0020	U	ug/L	P375428	
		Dinotefuran**	0.0020	U	ug/L	P375428	
		Diuron	0.0020	U	ug/L	P375428	
		Fenuron	0.099		ug/L	P375428	
		Fluridone**	0.0069		ug/L	P375428	
		Imazapyr**	0.070		ug/L	P375428	
		Hydrocodone**	0.0020	U	ug/L	P375428	
		Ibuprofen**	0.020	U	ug/L	P375428	
		Imidacloprid	0.012		ug/L	P375428	MS
		Linuron	0.0040	U	ug/L	P375428	
		Mandestrobin**	0.0020	UJ	ug/L	P375428	
		MCPP	0.0020	U	ug/L	P375428	
		Naproxen**	0.0080	U	ug/L	P375428	
		Primidone**	0.0040	U	ug/L	P375428	
		Pyraclostrobin**	0.0020	U	ug/L	P375428	

Field ID: G4CE0168

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2141522	EPA 8321B	Thiamethoxam**	0.0020	U	ug/L	P375428	
		Tolfenpyrad**	0.0020	U	ug/L	P375428	
		Triclopyr**	0.0040	U	ug/L	P375428	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 8321B: J - second source check standards for some analytes were not available for analysis.

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

Sample Location: Lake Cypress @ Center

Collection Date/Time: 12/05/2019 11:23

Field ID: G4CE0166

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2141515	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P375364	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P375657	
		Sulfate	6.5		mg SO4/L	P375660	
		Color (true)	61		PCU	P375450	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P375503	
	SM 2540 C-97	TDS	104		mg/L	P376056	
	SM 2540 D-97	TSS	9	I	mg/L	P376061	
	SM 4500 F-C-97	Fluoride	0.083	I	mg F/L	P375505	
2141516	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P375865	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P375601	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P375464	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P375614	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P375517	
2141517	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P375382	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375364

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375657

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375660

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375865

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375601

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375464

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375614

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375382

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

Reference Method: EPA 8321B
Batch ID: P375428

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P375428

Component	Result	Code	Units
Bentazon	8.0E-04	U	ug/L
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: EPA 8321B
Batch ID: P375521

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: P375450

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P375503

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

Reference Method: SM 2540 C-97
Batch ID: P376056

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P376061

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P375505

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P375517

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375657

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375660

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375865

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375601

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375464

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: P375614

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: P375382

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

Reference Method: EPA 8321B
Batch ID: P375428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	158		P	30 - 160
Acetaminophen	103		P	30 - 150
Acetamiprid	104		P	30 - 160
Afidopyropen	101		P	30 - 160
Bentazon	98.5		P	30 - 150
Benzovindiflupyr	100		P	30 - 160
Carbamazepine	112		P	30 - 160
Clothianidin	102		P	30 - 160
Dinotefuran	107		P	30 - 160
Diuron	90.6		P	30 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P375428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fenuron	108		P	30 - 160
Fluridone	106		P	30 - 160
Hydrocodone	102		P	30 - 160
Ibuprofen	96.0		P	30 - 160
Imazapyr	110		P	30 - 160
Imidacloprid	114		P	30 - 160
Linuron	77.6		P	30 - 160
Mandestrobin	91.1		P	30 - 160
MCPP	159		P	30 - 160
Naproxen	97.7		P	30 - 160
Primidone	99.5		P	30 - 160
Pyraclostrobin	88.9		P	30 - 160
Thiamethoxam	108		P	30 - 160
Tolfenpyrad	56.6		P	30 - 160
Triclopyr	136		P	30 - 160

Reference Method: EPA 8321B
Batch ID: P375521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	117		P	40 - 150
AMPA	82.1		P	40 - 150
Endothall	78.5		P	40 - 150
Glufosinate	80.5		P	40 - 150
Glyphosate	108		P	40 - 140
Sucralose	88.5		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P375450

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P375503

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

Reference Method: SM 4500 F-C-97
Batch ID: P375505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P375517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141313	Chloride	106		P	90 - 110
2141479	Chloride	107		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375660

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141313	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141647	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375601

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141647	Kjeldahl Nitrogen	102	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141480	NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375382

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141481	O-Phosphate-P	94.5	96.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P375428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141488	2,4-D	137	126	P/P	30 - 160
2141488	Acetaminophen	106	102	P/P	30 - 150
2141488	Acetamiprid	120	115	P/P	30 - 160
2141488	Afidopyropen	102	96.7	P/P	30 - 160
2141488	Bentazon	84.4	69.3	P/P	30 - 150
2141488	Benzovindiflupyr	100	94.9	P/P	30 - 160
2141488	Carbamazepine	94.8	93.2	P/P	30 - 160
2141488	Clothianidin	109	99.0	P/P	30 - 160
2141488	Dinotefuran	128	127	P/P	30 - 160
2141488	Diuron	77.6	78.5	P/P	30 - 160
2141488	Fenuron	90.8	86.5	P/P	30 - 160
2141488	Fluridone	105	104	P/P	30 - 160
2141488	Hydrocodone	111	103	P/P	30 - 160
2141488	Ibuprofen	80.6	74.2	P/P	30 - 160
2141488	Imazapyr	139	129	P/P	30 - 160

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P375428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141488	Imidacloprid	185	170	F/F	30 - 160
2141488	Linuron	75.1	69.9	P/P	30 - 160
2141488	Mandestrobin	90.6	87.9	P/P	30 - 160
2141488	MCPP	156	139	P/P	30 - 160
2141488	Naproxen	103	86.0	P/P	30 - 160
2141488	Primidone	106	102	P/P	30 - 160
2141488	Pyraclostrobin	87.8	83.3	P/P	30 - 160
2141488	Thiamethoxam	153	150	P/P	30 - 160
2141488	Tolfenpyrad	59.9	52.3	P/P	30 - 160
2141488	Triclopyr	140	124	P/P	30 - 160

Reference Method: EPA 8321B
Batch ID: P375521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141365	Acesulfame K	149	151	P/F	40 - 150
2141365	AMPA	62.2	66.9	P/P	40 - 150
2141365	Endothall	114	108	P/P	40 - 150
2141365	Glufosinate	85.3	85.0	P/P	40 - 150
2141365	Sucralose	73.6	85.8	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P375505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141336	Fluoride	95.9	94.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P375517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2141180	Organic Carbon	98.4	98.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141469	Turbidity	5.30	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141313	Chloride	0.759	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375660

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141313	Sulfate	0.938	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141647	Ammonia-N	0.0459	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141647	Kjeldahl Nitrogen	3.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141480	NO2NO3-N	0.319	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141353	Total-P	1.78	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141481	O-Phosphate-P	1.41	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P375428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141488	2,4-D	8.27	Spike	P	0 - 30
2141488	Acetaminophen	4.45	Spike	P	0 - 30
2141488	Acetamiprid	4.30	Spike	P	0 - 30
2141488	Afidopyropen	5.10	Spike	P	0 - 30
2141488	Bentazon	8.70	Spike	P	0 - 30
2141488	Benzovindiflupyr	5.50	Spike	P	0 - 30
2141488	Carbamazepine	1.68	Spike	P	0 - 30
2141488	Clothianidin	9.47	Spike	P	0 - 30
2141488	Dinotefuran	0.742	Spike	P	0 - 30
2141488	Diuron	0.818	Spike	P	0 - 30
2141488	Fenuron	4.81	Spike	P	0 - 30
2141488	Fluridone	0.335	Spike	P	0 - 30
2141488	Hydrocodone	8.01	Spike	P	0 - 30
2141488	Ibuprofen	8.29	Spike	P	0 - 30
2141488	Imazapyr	3.38	Spike	P	0 - 30
2141488	Imidacloprid	7.99	Spike	P	0 - 30
2141488	Linuron	7.18	Spike	P	0 - 30
2141488	Mandestrobin	3.08	Spike	P	0 - 30
2141488	MCPP	11.8	Spike	P	0 - 30
2141488	Naproxen	17.7	Spike	P	0 - 30
2141488	Primidone	3.88	Spike	P	0 - 30
2141488	Pyraclostrobin	5.25	Spike	P	0 - 30
2141488	Thiamethoxam	1.97	Spike	P	0 - 30
2141488	Tolfenpyrad	13.5	Spike	P	0 - 30
2141488	Triclopyr	12.0	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P375521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141365	Acesulfame K	1.26	Spike	P	0 - 30
2141365	AMPA	2.68	Spike	P	0 - 30
2141365	Endothall	5.93	Spike	P	0 - 30
2141365	Glufosinate	0.444	Spike	P	0 - 30
2141365	Glyphosate	28.7	Spike	P	0 - 30
2141365	Sucralose	5.84	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P375450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141346	Color (true)	3.55	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P375503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141336	Total Alkalinity	0.261	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P376056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141349	TDS	7.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P375505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141336	Fluoride	1.43	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P375517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2141180	Organic Carbon	0.336	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2141522

Field Sample ID: G4CE0168

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	112	P	30 - 160
EPA 8321B	Acetaminophen-d4	90.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.3	P	30 - 160
EPA 8321B	Diuron-d6	72.0	P	30 - 160
EPA 8321B	Endothall-d6	65.4	P	30 - 160
EPA 8321B	Endothall-d6	65.4	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.5	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	82.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	74.8	P	30 - 160
EPA 8321B	Primidone-d5	89.0	P	30 - 160
EPA 8321B	Sucralose-d6	96.0	P	30 - 160
EPA 8321B	Sucralose-d6	96.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96167

Included Lab Sample IDs: 2141512, 2141515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96172

Included Lab Sample IDs: 2141514, 2141517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.5	95.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A96200

Included Lab Sample IDs: 2141512, 2141515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96201

Included Lab Sample IDs: 2141513, 2141516

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96205

Included Lab Sample IDs: 2141512, 2141515

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

Reference Method: SM 2320 B-97

Run ID: A96216

Included Lab Sample IDs: 2141512, 2141515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A96216

Included Lab Sample IDs: 2141512, 2141515

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A96224

Included Lab Sample IDs: 2141513, 2141516

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A96224

Included Lab Sample IDs: 2141513, 2141516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	94.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A96272

Included Lab Sample IDs: 2141522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	116	77.5	P/P	60 - 160
Glufosinate	83.0	82.7	P/P	60 - 160
Glyphosate	112	93.8	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A96277

Included Lab Sample IDs: 2141522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	127	118	P/P	60 - 160
Endothall	83.1	86.0	P/P	60 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96285

Included Lab Sample IDs: 2141513, 2141516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96314

Included Lab Sample IDs: 2141516

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96342

Included Lab Sample IDs: 2141513

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96351

Included Lab Sample IDs: 2141513, 2141516

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
 Run ID: A96420
 Included Lab Sample IDs: 2141522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	97.3	98.3	P/P	60 - 160

Reference Method: EPA 8321B
 Run ID: A96566
 Included Lab Sample IDs: 2141522

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	79.9	87.1	P/P	50 - 150
Acetaminophen	106	108	P/P	60 - 160
Acetamiprid	102	106	P/P	60 - 160
Afidopyropen	106	100	P/P	50 - 150
Bentazon	98.0	98.7	P/P	50 - 160
Benzovindiflupyr	111	103	P/P	60 - 150
Carbamazepine	99.1	98.2	P/P	60 - 150
Clothianidin	104	107	P/P	50 - 150
Dinotefuran	107	106	P/P	50 - 150
Diuron	97.2	95.6	P/P	60 - 150
Fenuron	103	108	P/P	60 - 150
Fluridone	110	110	P/P	60 - 160
Hydrocodone	103	107	P/P	60 - 150
Ibuprofen	86.3	110	P/P	50 - 160
Imazapyr	101	106	P/P	50 - 150
Imidacloprid	98.2	101	P/P	60 - 150
Linuron	97.0	104	P/P	60 - 150
Mandestrobin	102	104	P/P	50 - 150
MCP	91.4	88.5	P/P	50 - 150
Naproxen	145	117	P/P	50 - 160
Primidone	99.1	101	P/P	60 - 150
Pyraclostrobin	102	97.4	P/P	60 - 150
Thiamethoxam	108	112	P/P	60 - 150
Tolfenpyrad	99.3	95.3	P/P	50 - 150
Triclopyr	108	92.5	P/P	50 - 150

* 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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					5.30	
EPA 300.0 Rev. 2.1	Chloride	105	106	107		0.759	
	Sulfate	101	102			0.938	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	100	100			0.0459
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.6	102	106			3.10
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.0	99.5			0.319
EPA 365.1 Rev. 2.0	Total-P	104					1.78
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.1	94.5	96.4			1.41
EPA 8321B	2,4-D	158	137	126			8.27
	Acesulfame K	117	149	151			1.26
	Acetaminophen	103	106	102			4.45
	Acetamiprid	104	120	115			4.30
	Afidopyropen	101	102	96.7			5.10
	AMPA	82.1	62.2	66.9			2.68
	Bentazon	98.5	84.4	69.3			8.70
	Benzovindiflupyr	100	100	94.9			5.50
	Carbamazepine	112	94.8	93.2			1.68
	Clothianidin	102	109	99.0			9.47
	Dinotefuran	107	128	127			0.742
	Diuron	90.6	77.6	78.5			0.818
	Endothall	78.5	114	108			5.93
	Fenuron	108	90.8	86.5			4.81
	Fluridone	106	105	104			0.335
	Glufosinate	80.5	85.3	85.0			0.444
	Glyphosate	108					28.7
	Hydrocodone	102	111	103			8.01
	Ibuprofen	96.0	80.6	74.2			8.29
	Imazapyr	110	139	129			3.38
	Imidacloprid	114	185	170			7.99
	Linuron	77.6	75.1	69.9			7.18
	Mandestrobin	91.1	90.6	87.9			3.08
	MCPP	159	156	139			11.8
	Naproxen	97.7	103	86.0			17.7
	Primidone	99.5	106	102			3.88
	Pyraclostrobin	88.9	87.8	83.3			5.25
	Sucralose	88.5	73.6	85.8			5.84
	Thiamethoxam	108	153	150			1.97
	Tolfenpyrad	56.6	59.9	52.3			13.5
	Triclopyr	136	140	124			12.0
SM 2120 B	Color (true)	100				3.55	
SM 2320 B-97	Total Alkalinity	102				0.261	
SM 2540 C-97	TDS					7.33	
SM 4500 F-C-97	Fluoride	95.3	95.9	94.4			1.43
SM 5310 B-00	Organic Carbon	99.0	98.4	98.9			0.336

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2141512, 2141515
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2141512, 2141515

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2141512, 2141515
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2141513, 2141516
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2141513, 2141516
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2141513, 2141516
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2141513, 2141516
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2141514, 2141517
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2141522
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2141522
SM 2120 B / E31780	True Color measured at 450 nm	2141512, 2141515
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2141512, 2141515
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2141512, 2141515
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2141512, 2141515
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2141512, 2141515
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2141513, 2141516

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	12/06/2019			12/06/2019 16:23	Samantha Davila	2141512, 2141515
EPA 300.0 Rev. 2.1	12/06/2019			12/12/2019 06:38	Lipi Saha	2141512
	12/06/2019			12/12/2019 06:50	Lipi Saha	2141515
EPA 350.1 Rev. 2.0	12/06/2019			12/13/2019 11:05	Ping Hua	2141513
	12/06/2019			12/13/2019 11:07	Ping Hua	2141516
EPA 351.2 Rev. 2.0	12/06/2019	12/11/2019 12:14	Sima Feizi	12/12/2019 12:43	Jhamieka S. Greenwood	2141513
	12/06/2019	12/11/2019 12:14	Sima Feizi	12/12/2019 12:45	Jhamieka S. Greenwood	2141516
EPA 353.2 Rev. 2.0	12/06/2019			12/09/2019 11:31	Beverly Y. Sanders	2141513
	12/06/2019			12/09/2019 11:32	Beverly Y. Sanders	2141516
EPA 365.1 Rev. 2.0	12/06/2019	12/11/2019 10:23	Yen Ta	12/12/2019 17:07	Benjamin T. Nordmann	2141516
	12/06/2019	12/11/2019 10:23	Yen Ta	12/13/2019 16:13	Benjamin T. Nordmann	2141513
EPA 365.1 Rev. 2.0 dissolved	12/06/2019			12/06/2019 16:19	Virginia P. Brown	2141514, 2141517
EPA 8321B	12/06/2019	12/10/2019 14:30	Rebecca Ware	12/10/2019 18:28	Rebecca Ware	2141522
	12/06/2019	12/10/2019 14:30	Rebecca Ware	12/11/2019 16:45	Rebecca Ware	2141522
	12/06/2019	12/10/2019 14:30	Rebecca Ware	12/17/2019 22:21	Mohammad Ghaffari	2141522
	12/06/2019	12/11/2019 10:00	Hoor Shaik	12/21/2019 02:36	Juyoung Kim	2141522
SM 2120 B	12/06/2019			12/06/2019 17:46	Madeline Funaro	2141512
	12/06/2019			12/06/2019 17:47	Madeline Funaro	2141515
SM 2320 B-97	12/06/2019			12/09/2019 21:24	Dale L. Simmons	2141512
	12/06/2019			12/09/2019 21:36	Dale L. Simmons	2141515
SM 2540 C-97	12/06/2019			12/11/2019 15:32	Yijie Li	2141512, 2141515
SM 2540 D-97	12/06/2019			12/11/2019 15:32	Yijie Li	2141512, 2141515
SM 4500 F-C-97	12/06/2019			12/09/2019 21:24	Dale L. Simmons	2141512
	12/06/2019			12/09/2019 21:36	Dale L. Simmons	2141515
SM 5310 B-00	12/06/2019			12/10/2019 06:53	Madeline Funaro	2141513
	12/06/2019			12/10/2019 07:32	Madeline Funaro	2141516