

Chemical Analysis Report

CEN-DIST-2018-12-28-02

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

Event Description: **unnamed Branch**
Request ID: **RQ-2018-12-03-56**
Customer: **CEN-DIST**
Project ID: **SMP**

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

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 15-JAN-2019 18:31



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 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: Unnamed Branch @ 60m Upstream of Airport Road (2641)

Collection Date/Time: 12/27/2018 10:26

Field ID: G5CE0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2051157	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P356729	
	EPA 300.0 Rev. 2.1	Chloride	46		mg Cl/L	P356869	
		Sulfate	5.8		mg SO4/L	P356873	
	SM 2120 B	Color (true)	78		PCU	P356702	
	SM 2320 B-97	Total Alkalinity	89		mg CaCO3/L	P356933	
	SM 2540 C-97	TDS	197		mg/L	P356783	
	SM 2540 D-97	TSS	2	U	mg/L	P356764	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P356938	
2051158	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P356752	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P356838	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P356737	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P356770	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P356742	
2051159	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P356698	
2051169	EPA 8321B	2,4-D	0.0020	U	ug/L	P356618	
		Sucralose**	0.096		ug/L	P356716	
		Bentazon	0.051		ug/L	P356618	MS
		MCP	0.0023	I	ug/L	P356618	
		Triclopyr**	0.0040	U	ug/L	P356618	
		Imidacloprid	0.012		ug/L	P356618	
		Diuron	0.0020	U	ug/L	P356618	MS
		Pyraclostrobin**	0.0020	U	ug/L	P356618	
		Primidone**	0.0040	U	ug/L	P356618	
		Linuron	0.0040	U	ug/L	P356618	MS
		Acetaminophen**	0.0080	U	ug/L	P356618	
		Fenuron	0.016	U	ug/L	P356618	
		Imazapyr**	0.15		ug/L	P356618	
		Carbamazepine**	8.0E-04	U	ug/L	P356618	
		Fluridone**	0.0048		ug/L	P356618	
		Hydrocodone**	8.0E-04	U	ug/L	P356618	
		Naproxen**	0.0080	U	ug/L	P356618	MS
		Ibuprofen**	0.020	U	ug/L	P356618	
		Acesulfame K**	0.10	U	ug/L	P356716	

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: P356729

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356869

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356752

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356838

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356737

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356770

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356698

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

Reference Method: EPA 8321B
Batch ID: P356618

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P356618

Component	Result	Code	Units
Diuron	0.0020	U	ug/L
Fenuron	0.016	U	ug/L
Fluridone	4.0E-04	U	ug/L
Hydrocodone	8.0E-04	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: P356716

Component	Result	Code	Units
Acesulfame K	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P356702

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P356933

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P356783

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356764

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P356742

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: P356869

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356752

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356838

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356737

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: P356770

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.9		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P356618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	103		P	40 - 150
Acetaminophen	60.9		P	30 - 150
Bentazon	44.0		P	30 - 150
Carbamazepine	53.2		P	40 - 150
Diuron	43.9		P	40 - 150
Fenuron	92.9		P	40 - 150
Fluridone	89.9		P	40 - 150
Hydrocodone	66.8		P	40 - 150
Ibuprofen	50.6		P	40 - 150
Imazapyr	61.0		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P356618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Imidacloprid	78.4		P	40 - 160
Linuron	45.3		P	40 - 150
MCPP	136		P	40 - 150
Naproxen	55.9		P	40 - 150
Primidone	70.1		P	40 - 150
Pyraclostrobin	62.0		P	40 - 150
Triclopyr	72.6		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P356716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	107		P	40 - 150
Sucralose	104		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P356702

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

Reference Method: SM 2320 B-97
Batch ID: P356933

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P356742

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050990	Chloride	96.4		P	90 - 110
2051275	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050990	Sulfate	96.6		P	90 - 110
2051275	Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2051158	Ammonia-N	99.3	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2051158	Kjeldahl Nitrogen	107	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2051106	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050995	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2051159	O-Phosphate-P	92.7	94.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P356618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050938	2,4-D	77.5	64.5	P/P	40 - 150
2050938	Acetaminophen	75.5	65.8	P/P	30 - 150
2050938	Bentazon	29.7	22.7	F/F	30 - 150
2050938	Carbamazepine	47.1	41.1	P/P	40 - 150
2050938	Diuron	40.9	35.2	P/F	40 - 150
2050938	Fenuron	59.2	59.5	P/P	40 - 150
2050938	Fluridone	85.7	73.3	P/P	40 - 150
2050938	Hydrocodone	46.4	48.2	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P356618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050938	Ibuprofen	49.9	49.6	P/P	40 - 150
2050938	Imazapyr	62.1	52.1	P/P	40 - 150
2050938	Imidacloprid	88.9	78.6	P/P	40 - 160
2050938	Linuron	41.9	35.3	P/F	40 - 150
2050938	MCPP	114	91.9	P/P	40 - 150
2050938	Naproxen	42.0	39.6	P/F	40 - 150
2050938	Primidone	59.3	49.8	P/P	40 - 150
2050938	Pyraclostrobin	63.8	56.7	P/P	40 - 150
2050938	Triclopyr	61.7	47.2	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P356716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2050938	Acesulfame K	92.9	87.1	P/P	40 - 150
2050938	Sucralose	109	115	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2051828	Fluoride	93.4	95.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P356742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2051064	Organic Carbon	98.2	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P356729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051016	Turbidity	1.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050990	Chloride	0.973	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P356873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050990	Sulfate	0.668	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P356752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051158	Ammonia-N	2.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P356838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051158	Kjeldahl Nitrogen	3.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051106	NO2NO3-N	0.346	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050995	Total-P	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051159	O-Phosphate-P	1.46	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P356618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050938	2,4-D	12.4	Spike	P	0 - 30
2050938	Acetaminophen	13.8	Spike	P	0 - 30
2050938	Bentazon	11.7	Spike	P	0 - 30
2050938	Carbamazepine	13.5	Spike	P	0 - 30
2050938	Diuron	15.0	Spike	P	0 - 30
2050938	Fenuron	0.531	Spike	P	0 - 30
2050938	Fluridone	15.4	Spike	P	0 - 30
2050938	Hydrocodone	3.90	Spike	P	0 - 30
2050938	Ibuprofen	0.525	Spike	P	0 - 30
2050938	Imazapyr	10.2	Spike	P	0 - 30
2050938	Imidacloprid	12.4	Spike	P	0 - 30
2050938	Linuron	17.1	Spike	P	0 - 30
2050938	MCP	17.9	Spike	P	0 - 30
2050938	Naproxen	4.58	Spike	P	0 - 30
2050938	Primidone	17.3	Spike	P	0 - 30
2050938	Pyraclostrobin	11.8	Spike	P	0 - 30
2050938	Triclopyr	19.0	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P356716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2050938	Acesulfame K	6.45	Spike	P	0 - 30
2050938	Sucralose	4.80	Spike	P	0 - 30

Reference Method: SM 2120 B

Batch ID: P356702

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051105	Color (true)	0.751	Sample	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P356933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051828	Total Alkalinity	0.0128	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97

Batch ID: P356783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051017	TDS	0.0	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P356938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051828	Fluoride	1.96	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P356742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2051064	Organic Carbon	0.670	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: 2051169
Field Sample ID: G5CE0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	115	P	30 - 160
EPA 8321B	Acetaminophen-d4	99.9	P	30 - 160
EPA 8321B	Carbamazepine-d10	52.3	P	30 - 160
EPA 8321B	Diuron-d6	44.9	P	30 - 160
EPA 8321B	Endothall-d6	68.3	P	40 - 160
EPA 8321B	Endothall-d6	68.3	P	40 - 160
EPA 8321B	Endothall-d6	68.3	P	40 - 160
EPA 8321B	Endothall-d6	68.3	P	40 - 160
EPA 8321B	Ibuprofen-d3	77.6	P	60 - 160
EPA 8321B	Primidone-d5	68.6	P	30 - 160
EPA 8321B	Sucralose-d6	100	P	40 - 160
EPA 8321B	Sucralose-d6	100	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88556

Included Lab Sample IDs: 2051159

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	97.7	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A88558

Included Lab Sample IDs: 2051157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.6	99.9	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88582

Included Lab Sample IDs: 2051157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 8321B

Run ID: A88589

Included Lab Sample IDs: 2051169

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	144	124	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88590

Included Lab Sample IDs: 2051158

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

Reference Method: SM 5310 B-00

Run ID: A88596

Included Lab Sample IDs: 2051158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88604

Included Lab Sample IDs: 2051158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A88606

Included Lab Sample IDs: 2051169

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	105	111	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88626

Included Lab Sample IDs: 2051157

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

Reference Method: EPA 8321B

Run ID: A88636

Included Lab Sample IDs: 2051169

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	80.9	77.0	P/P	50 - 150
Acetaminophen	92.8	93.6	P/P	60 - 160
Bentazon	91.6	94.8	P/P	50 - 160
Carbamazepine	102	100	P/P	60 - 150
Diuron	121	116	P/P	60 - 150
Fenuron	114	113	P/P	60 - 150
Fluridone	113	113	P/P	60 - 160
Hydrocodone	96.0	93.4	P/P	60 - 150
Ibuprofen	85.8	97.5	P/P	50 - 160
Imazapyr	78.6	82.6	P/P	50 - 150
Imidacloprid	88.9	87.0	P/P	60 - 150
Linuron	98.9	100	P/P	60 - 150
MCPP	89.6	85.7	P/P	50 - 150
Naproxen	61.9	102	P/P	50 - 160
Primidone	95.4	109	P/P	60 - 150
Pyraclostrobin	96.8	93.5	P/P	60 - 150
Triclopyr	90.6	88.2	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88647

Included Lab Sample IDs: 2051158

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88673

Included Lab Sample IDs: 2051158

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	107	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88689

Included Lab Sample IDs: 2051157

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A88689

Included Lab Sample IDs: 2051157

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	95.3	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.83	
EPA 300.0 Rev. 2.1	Chloride	98.2	96.4	97.5	0.973	
	Sulfate	97.2	96.6	98.3	0.668	
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	99.3	102		2.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	107	103		3.01
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	100			0.346
EPA 365.1 Rev. 2.0	Total-P	105	103	102		1.31
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.9	92.7	94.5		1.46
EPA 8321B	2,4-D	103	77.5	64.5		12.4
	Acesulfame K	107	92.9	87.1		6.45
	Acetaminophen	60.9	75.5	65.8		13.8
	Bentazon	44.0	29.7	22.7		11.7
	Carbamazepine	53.2	47.1	41.1		13.5
	Diuron	43.9	40.9	35.2		15.0
	Fenuron	92.9	59.2	59.5		0.531
	Fluridone	89.9	85.7	73.3		15.4
	Hydrocodone	66.8	46.4	48.2		3.90
	Ibuprofen	50.6	49.9	49.6		0.525
	Imazapyr	61.0	62.1	52.1		10.2
	Imidacloprid	78.4	88.9	78.6		12.4
	Linuron	45.3	41.9	35.3		17.1
	MCP	136	114	91.9		17.9
	Naproxen	55.9	42.0	39.6		4.58
	Primidone	70.1	59.3	49.8		17.3
	Pyraclostrobin	62.0	63.8	56.7		11.8
	Sucralose	104	109	115		4.80
	Triclopyr	72.6	61.7	47.2		19.0
SM 2120 B	Color (true)	101			0.751	
SM 2320 B-97	Total Alkalinity	101			0.0128	
SM 2540 C-97	TDS				0.0	
SM 4500 F-C-97	Fluoride	95.1	93.4	95.7		1.96
SM 5310 B-00	Organic Carbon	97.5	98.2	97.0		0.670

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2051157
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2051157
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2051157
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2051158
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2051158
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2051158
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2051158
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2051159
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2051169
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2051169
SM 2120 B / E31780	True Color measured at 450 nm	2051157

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2051157
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2051157
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2051157
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2051157
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2051158

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	12/28/2018			12/28/2018 15:41	Blanca Fach	2051157
EPA 300.0 Rev. 2.1	12/28/2018			01/05/2019 00:08	Lipi Saha	2051157
EPA 350.1 Rev. 2.0	12/28/2018			01/02/2019 13:11	Ping Hua	2051158
EPA 351.2 Rev. 2.0	12/28/2018	01/04/2019 12:30	Adrian Shelby	01/07/2019 10:33	Joseph Suarez	2051158
EPA 353.2 Rev. 2.0	12/28/2018			01/02/2019 15:31	Lauren Bottorf	2051158
EPA 365.1 Rev. 2.0	12/28/2018	01/03/2019 13:10	Sima Feizi	01/04/2019 10:23	Beverly Y. Sanders	2051158
EPA 365.1 Rev. 2.0 dissolved	12/28/2018			12/28/2018 14:18	Jhamieka S. Greenwood	2051159
EPA 8321B	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/02/2019 13:55	Rebecca Ware	2051169
	12/28/2018	01/02/2019 09:30	Mohammad Ghaffari	01/03/2019 03:09	Rebecca Ware	2051169
	12/28/2018	01/02/2019 13:30	Juyoung Kim	01/04/2019 07:52	Juyoung Kim	2051169
SM 2120 B	12/28/2018			12/28/2018 15:29	Chelsea Hernandez	2051157
SM 2320 B-97	12/28/2018			01/08/2019 09:01	Dale L. Simmons	2051157
SM 2540 C-97	12/28/2018			12/28/2018 17:03	Yijie Li	2051157
SM 2540 D-97	12/28/2018			12/28/2018 17:03	Yijie Li	2051157
SM 4500 F-C-97	12/28/2018			01/08/2019 09:01	Dale L. Simmons	2051157
SM 5310 B-00	12/28/2018			01/02/2019 11:06	Megan Treadwell	2051158