

Chemical Analysis Report

CEN-DIST-2018-09-14-02

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

Event Description: **Unnamed Drain (2641) Vol Co**
Request ID: **RQ-2018-07-16-41**
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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 04-OCT-2018 11:09

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 first name.

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: 09/13/2018 10:30

Field ID: G5CE0084

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2025568	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P351845	
	EPA 300.0 Rev. 2.1	Chloride	57		mg Cl/L	P352243	
		Sulfate	4.0		mg SO4/L	P352246	
	SM 2120 B	Color (true)	76		PCU	P351993	
	SM 2320 B-97	Total Alkalinity	105		mg CaCO3/L	P351903	
	SM 2540 C-97	TDS	236		mg/L	P352129	
	SM 2540 D-97	TSS	4	I	mg/L	P352131	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P351906	
2025569	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P352034	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P351951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P352000	
	EPA 365.1 Rev. 2.0	Total-P	0.084		mg P/L	P351802	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P352093	
2025570	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P351689	
2025580	EPA 8321B	2,4-D	0.0020	U	ug/L	P351577	
		Sucralose**	0.18		ug/L	P351895	
		Bentazon	0.076		ug/L	P351577	
		MCP	0.0020	U	ug/L	P351577	
		Triclopyr**	0.0040	U	ug/L	P351577	
		Imidacloprid	0.012		ug/L	P351577	
		Diuron	0.0020	U	ug/L	P351577	
		Pyraclostrobin**	0.0020	U	ug/L	P351577	
		Primidone**	0.0040	U	ug/L	P351577	
		Linuron	0.0040	U	ug/L	P351577	
		Acetaminophen**	0.0080	U	ug/L	P351577	
		Fenuron	0.016	U	ug/L	P351577	
		Imazapyr**	0.25		ug/L	P351577	
		Carbamazepine**	8.0E-04	U	ug/L	P351577	
		Fluridone**	0.0044		ug/L	P351577	
		Hydrocodone**	8.0E-04	U	ug/L	P351577	
		Naproxen**	0.0080	U	ug/L	P351577	
		Ibuprofen**	0.020	U	ug/L	P351577	

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: P351845

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352243

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352246

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352034

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351951

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352000

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351802

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351689

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

Reference Method: EPA 8321B
Batch ID: P351577

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: P351577

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: P351895

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P351993

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P351903

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

Reference Method: SM 2540 C-97
Batch ID: P352129

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P352131

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P351906

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: P352093

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: P352243

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352246

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352034

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351951

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352000

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: P351802

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351689

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

Reference Method: EPA 8321B
Batch ID: P351577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	82.4		P	40 - 150
Acetaminophen	86.7		P	30 - 150
Bentazon	55.6		P	30 - 150
Carbamazepine	81.7		P	40 - 150
Diuron	77.3		P	40 - 150
Fenuron	85.0		P	40 - 150
Fluridone	88.6		P	40 - 150
Hydrocodone	95.3		P	40 - 150
Ibuprofen	106		P	40 - 150
Imazapyr	76.8		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P351577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Imidacloprid	72.4		P	40 - 160
Linuron	66.0		P	40 - 150
MCPP	93.6		P	40 - 150
Naproxen	83.5		P	40 - 150
Primidone	71.9		P	40 - 150
Pyraclostrobin	78.5		P	40 - 150
Triclopyr	86.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P351895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	129		P	40 - 150

Reference Method: SM 2120 B
Batch ID: P351993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.6		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P351903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P351906

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352093

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025426	Chloride	98.7		P	90 - 110
2025489	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025426	Sulfate	98.6		P	90 - 110
2025489	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025461	Ammonia-N	101	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025722	Kjeldahl Nitrogen	97.0	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025491	NO2NO3-N	99.3	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025458	Total-P	99.5	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025465	O-Phosphate-P	102	103	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P351577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025218	2,4-D	148	86.4	P/P	40 - 150
2025218	Acetaminophen	94.4	87.1	P/P	30 - 150
2025218	Bentazon	31.6	32.1	P/P	30 - 150
2025218	Carbamazepine	67.6	65.0	P/P	40 - 150
2025218	Diuron	57.7	58.4	P/P	40 - 150
2025218	Fenuron	73.2	70.0	P/P	40 - 150
2025218	Fluridone	84.8	81.7	P/P	40 - 150
2025218	Hydrocodone	93.7	97.5	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P351577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025218	Ibuprofen	101	86.1	P/P	40 - 150
2025218	Imazapyr	86.1	86.3	P/P	40 - 150
2025218	Imidacloprid	140	117	P/P	40 - 160
2025218	Linuron	61.2	56.8	P/P	40 - 150
2025218	MCPP	107	105	P/P	40 - 150
2025218	Naproxen	94.5	82.0	P/P	40 - 150
2025218	Primidone	86.2	75.3	P/P	40 - 150
2025218	Pyraclostrobin	83.0	84.8	P/P	40 - 150
2025218	Triclopyr	99.1	103	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P351895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026897	Sucralose	124	140	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P351906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025343	Fluoride	96.3	95.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P352093

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2025542	Organic Carbon	98.4	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P351845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025541	Turbidity	13.9	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025426	Chloride	1.98	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P352246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025426	Sulfate	1.80	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P352034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025461	Ammonia-N	1.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P351951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025722	Kjeldahl Nitrogen	0.194	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P352000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025491	NO2NO3-N	0.442	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P351802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025458	Total-P	1.77	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P351689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025465	O-Phosphate-P	0.977	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P351577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025218	2,4-D	6.08	Spike	P	0 - 30
2025218	Acetaminophen	7.98	Spike	P	0 - 30
2025218	Bentazon	0.574	Spike	P	0 - 30
2025218	Carbamazepine	2.61	Spike	P	0 - 30
2025218	Diuron	1.18	Spike	P	0 - 30
2025218	Fenuron	4.52	Spike	P	0 - 30
2025218	Fluridone	3.76	Spike	P	0 - 30
2025218	Hydrocodone	3.90	Spike	P	0 - 30
2025218	Ibuprofen	15.6	Spike	P	0 - 30
2025218	Imazapyr	0.0992	Spike	P	0 - 30
2025218	Imidacloprid	13.5	Spike	P	0 - 30
2025218	Linuron	7.47	Spike	P	0 - 30
2025218	MCPP	1.88	Spike	P	0 - 30
2025218	Naproxen	14.2	Spike	P	0 - 30
2025218	Primidone	13.4	Spike	P	0 - 30
2025218	Pyraclostrobin	2.13	Spike	P	0 - 30
2025218	Triclopyr	3.54	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P351895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026897	Sucralose	11.2	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P351993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025489	Color (true)	1.21	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P351903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025343	Total Alkalinity	0.145	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P352129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025490	TDS	5.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P351906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P351906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025343	Fluoride	0.487	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P352093

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025542	Organic Carbon	1.11	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: 2025580
Field Sample ID: G5CE0084

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	89.5	P	30 - 160
EPA 8321B	Acetaminophen-d4	110	P	30 - 160
EPA 8321B	Carbamazepine-d10	69.0	P	30 - 160
EPA 8321B	Diuron-d6	66.5	P	30 - 160
EPA 8321B	Ibuprofen-d3	67.8	P	30 - 160
EPA 8321B	Primidone-d5	78.0	P	30 - 160
EPA 8321B	Sucralose-d6	142000	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A86502
Included Lab Sample IDs: 2025568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	97.8	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A86504
Included Lab Sample IDs: 2025570

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	97.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A86561
Included Lab Sample IDs: 2025568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	103	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86577
Included Lab Sample IDs: 2025569

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

Reference Method: SM 2320 B-97
Run ID: A86586
Included Lab Sample IDs: 2025568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A86586
Included Lab Sample IDs: 2025568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86615
Included Lab Sample IDs: 2025569

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86626
Included Lab Sample IDs: 2025569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	99.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A86630

Included Lab Sample IDs: 2025569

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

Reference Method: SM 5310 B-00

Run ID: A86647

Included Lab Sample IDs: 2025569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A86652

Included Lab Sample IDs: 2025580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	119	128	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A86696

Included Lab Sample IDs: 2025580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	74.9	71.6	P/P	60 - 160
Carbamazepine	110	106	P/P	60 - 160
Diuron	105	101	P/P	60 - 150
Fenuron	92.1	95.9	P/P	60 - 150
Fluridone	102	108	P/P	60 - 160
Hydrocodone	96.0	94.0	P/P	60 - 150
Imazapyr	83.3	85.1	P/P	50 - 150
Imidacloprid	91.3	79.9	P/P	60 - 150
Linuron	94.3	99.2	P/P	60 - 150
Primidone	80.9	72.0	P/P	60 - 150
Pyraclostrobin	101	97.8	P/P	60 - 150

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A86718

Included Lab Sample IDs: 2025568

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

Reference Method: EPA 8321B

Run ID: A86770

Included Lab Sample IDs: 2025580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	67.7	86.4	P/P	50 - 150
Bentazon	91.0	98.8	P/P	50 - 160
Ibuprofen	81.9	96.2	P/P	50 - 160
MCP	101	94.5	P/P	50 - 150
Naproxen	131	102	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A86770

Included Lab Sample IDs: 2025580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Triclopyr	102	101	P/P	50 - 160

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery		Precision	
						LCS	MS
EPA 180.1 Rev. 2.0	Turbidity					13.9	
EPA 300.0 Rev. 2.1	Chloride	102		98.7	102	1.98	
	Sulfate	101		98.6	101	1.80	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8		101	99.3		1.39
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103		97.0	97.2		0.194
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100		99.3	99.8		0.442
EPA 365.1 Rev. 2.0	Total-P	101		99.5	97.4		1.77
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101		102	103		0.977
EPA 8321B	2,4-D	82.4		148	86.4		6.08
	Acetaminophen	86.7		94.4	87.1		7.98
	Bentazon	55.6		31.6	32.1		0.574
	Carbamazepine	81.7		67.6	65.0		2.61
	Diuron	77.3		57.7	58.4		1.18
	Fenuron	85.0		73.2	70.0		4.52
	Fluridone	88.6		84.8	81.7		3.76
	Hydrocodone	95.3		93.7	97.5		3.90
	Ibuprofen	106		101	86.1		15.6
	Imazapyr	76.8		86.1	86.3		0.0992
	Imidacloprid	72.4		140	117		13.5
	Linuron	66.0		61.2	56.8		7.47
	MCPP	93.6		107	105		1.88
	Naproxen	83.5		94.5	82.0		14.2
	Primidone	71.9		86.2	75.3		13.4
	Pyraclostrobin	78.5		83.0	84.8		2.13
	Sucralose	129		124	140		11.2
	Triclopyr	86.2		99.1	103		3.54
SM 2120 B	Color (true)	96.6				1.21	
SM 2320 B-97	Total Alkalinity	100				0.145	
SM 2540 C-97	TDS					5.17	
SM 4500 F-C-97	Fluoride	97.6		96.3	95.8		0.487
SM 5310 B-00	Organic Carbon	97.3		98.4	96.8		1.11

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2025568
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2025568
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2025568
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2025569
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2025569
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2025569
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2025569
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2025570
EPA 8321B / E31780	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2025580
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	2025580
SM 2120 B / E31780	True Color measured at 450 nm	2025568
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2025568

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2025568
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2025568
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2025568
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2025569

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	09/14/2018			09/14/2018 16:35	Megan Treadwell	2025568
EPA 300.0 Rev. 2.1	09/14/2018			09/25/2018 13:06	Lipi Saha	2025568
EPA 350.1 Rev. 2.0	09/14/2018			09/20/2018 11:49	Ping Hua	2025569
EPA 351.2 Rev. 2.0	09/14/2018	09/20/2018 10:50	Adrian Shelby	09/21/2018 09:38	Joseph Suarez	2025569
EPA 353.2 Rev. 2.0	09/14/2018			09/20/2018 13:47	Lauren Bottorf	2025569
EPA 365.1 Rev. 2.0	09/14/2018	09/18/2018 12:30	Sima Feizi	09/19/2018 10:34	Beverly Y. Sanders	2025569
EPA 365.1 Rev. 2.0 dissolved	09/14/2018			09/14/2018 16:01	Julia Storbeck	2025570
EPA 8321B	09/14/2018	09/14/2018 12:00	Hoor Shaik	09/23/2018 22:37	Mohammad Ghaffari	2025580
	09/14/2018	09/14/2018 12:00	Hoor Shaik	09/27/2018 04:36	Juyoung Kim	2025580
	09/14/2018	09/21/2018 13:00	Mohammad Ghaffari	09/22/2018 01:22	Mohammad Ghaffari	2025580
SM 2120 B	09/14/2018			09/14/2018 15:42	DeAsia Armster	2025568
SM 2320 B-97	09/14/2018			09/19/2018 04:19	Dale L. Simmons	2025568
SM 2540 C-97	09/14/2018			09/18/2018 14:02	Yijie Li	2025568
SM 2540 D-97	09/14/2018			09/18/2018 14:02	Yijie Li	2025568
SM 4500 F-C-97	09/14/2018			09/19/2018 04:19	Dale L. Simmons	2025568
SM 5310 B-00	09/14/2018			09/21/2018 08:27	Megan Treadwell	2025569