

Chemical Analysis Report

CEN-DIST-2023-11-02-02

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Tiger Lake Outlet - WBID 1573Z**
Request ID: **RQ-2023-10-30-51**
Customer: **CEN-DIST**
Project ID: **TMDL**

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

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

Date Certified: 29-NOV-2023 10:28

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the 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 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: TIGER LAKE INLET AT SAM KEEN RD

Collection Date/Time: 11/01/2023 12:13

Field ID: G4CE0248

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2448520	DEP SOP: NU-094-1	Color (true)	100	A	PCU	P437299	
	EPA 180.1 Rev. 2.0	Turbidity	55		NTU	P437291	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P437826	
		Sulfate	22		mg SO4/L	P437830	
	SM 2320 B-2011	Total Alkalinity	87		mg CaCO3/L	P437542	
	SM 2540 C-2015	TDS	242	A	mg/L	P437814	
	SM 2540 D-2015	TSS	15	A	mg/L	P437781	
2448521	SM 4500-F- C-2011	Fluoride	0.17		mg F/L	P437402	
	EPA 350.1 Rev. 2.0	Ammonia-N	3.1		mg N/L	P437430	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	4.7		mg N/L	P437455	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P437605	
	EPA 365.1 Rev. 2.0	Total-P	6.2		mg P/L	P438172	
2448543	SM 5310 B-2011	Organic Carbon	22		mg C/L	P437452	
	EPA 8321B	2,4-D	0.019		ug/L	P437434	
		Acesulfame K	0.10	U	ug/L	P437333	
		2,4,5-T	0.0040	U	ug/L	P437434	
		AMPA	6.7		ug/L	P437333	
		Acetaminophen	0.048		ug/L	P437434	
		Acetamiprid	0.0020	U	ug/L	P437434	
		Endothall	0.25	U	ug/L	P437333	
		Glufosinate	0.10	U	ug/L	P437333	
		Glyphosate	4.4		ug/L	P437333	
		Afidopyropen	0.0020	U	ug/L	P437434	
		Sucralose	0.084		ug/L	P437333	
		Bentazon	8.0E-04	U	ug/L	P437434	MS
		Benzovindiflupyr	0.0020	U	ug/L	P437434	
		Carbamazepine	8.0E-04	U	ug/L	P437434	
		Clothianidin	0.0020	U	ug/L	P437434	
		Dinotefuran	0.0020	U	ug/L	P437434	
		Diuron	0.014		ug/L	P437434	
		Fenuron	0.032	U	ug/L	P437434	
		Fluridone	8.0E-04	U	ug/L	P437434	
		Imazapyr	0.054		ug/L	P437434	
		Hydrocodone	0.0020	U	ug/L	P437434	
		Ibuprofen	0.080	U	ug/L	P437434	MS
		Imidacloprid	0.0054	I	ug/L	P437434	
		Linuron	0.0040	U	ug/L	P437434	
		Mandestrobin	0.0020	U	ug/L	P437434	
		MCPP	0.0020	U	ug/L	P437434	
		Naproxen	0.0080	U	ug/L	P437434	
		Primidone	0.0040	U	ug/L	P437434	
		Pyraclostrobin	0.0020	U	ug/L	P437434	
		Silvex	0.0040	U	ug/L	P437434	
		Thiamethoxam	0.0020	U	ug/L	P437434	

Field ID: G4CE0248

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2448543	EPA 8321B	Tolfenpyrad	0.0020	U	ug/L	P437434	
		Triclopyr	0.0040	U	ug/L	P437434	

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P437299

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437291

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437826

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437830

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437430

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437455

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438172

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

Reference Method: EPA 8321B
Batch ID: P437333

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P437333

Component	Result	Code	Units
Glyphosate	0.10	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: EPA 8321B

Batch ID: P437434

Component	Result	Code	Units
2,4-D	0.0020	U	ug/L
2,4,5-T	0.0040	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
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	0.032	U	ug/L
Fluridone	8.0E-04	U	ug/L
Hydrocodone	0.0020	U	ug/L
Ibuprofen	0.080	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
Silvex	0.0040	U	ug/L
Thiamethoxam	0.0020	U	ug/L
Tolfenpyrad	0.0020	U	ug/L
Triclopyr	0.0040	U	ug/L

Reference Method: SM 2320 B-2011

Batch ID: P437542

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

Reference Method: SM 2540 C-2015

Batch ID: P437814

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2015

Batch ID: P437781

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P437402

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P437452

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P437299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.7		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437291

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437826

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437830

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437430

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438172

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

Reference Method: EPA 8321B
Batch ID: P437333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acesulfame K	86.3		P	40 - 150
AMPA	91.4		P	40 - 160
Endothall	91.7		P	40 - 160
Glufosinate	99.4		P	40 - 160

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P437333

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Glyphosate	94.5		P	40 - 160
Sucralose	82.4		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P437434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	66.8		P	40 - 150
2,4,5-T	50.3		P	40 - 150
Acetaminophen	94.2		P	30 - 150
Acetamiprid	93.2		P	40 - 150
Afidopyropen	59.6		P	30 - 150
Bentazon	64.7		P	30 - 150
Benzovindiflupyr	87.2		P	40 - 150
Carbamazepine	94.1		P	40 - 150
Clothianidin	97.5		P	40 - 150
Dinotefuran	95.8		P	40 - 150
Diuron	85.4		P	40 - 150
Fenuron	102		P	40 - 150
Fluridone	87.8		P	40 - 150
Hydrocodone	103		P	40 - 150
Ibuprofen	47.9		P	40 - 150
Imazapyr	61.0		P	40 - 150
Imidacloprid	87.1		P	40 - 150
Linuron	75.7		P	40 - 150
Mandestrobin	88.0		P	40 - 150
MCPP	61.5		P	40 - 150
Naproxen	41.3		P	40 - 150
Primidone	89.3		P	40 - 150
Pyraclostrobin	83.5		P	40 - 150
Silvex	54.1		P	40 - 150
Thiamethoxam	96.5		P	40 - 150
Tolfenpyrad	49.2		P	30 - 150
Triclopyr	58.2		P	40 - 150

Reference Method: SM 2320 B-2011
Batch ID: P437542

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	92 - 105

Reference Method: SM 2540 C-2015
Batch ID: P437814

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TDS	97.2		P	85 - 115

Reference Method: SM 2540 D-2015
Batch ID: P437781

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	106		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P437402

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	103		P	94 - 106

Reference Method: SM 5310 B-2011
Batch ID: P437452

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: P437826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448448	Chloride	107		P	90 - 110
2448513	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448448	Sulfate	107		P	90 - 110
2448513	Sulfate	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448478	Ammonia-N	95.0	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448707	Kjeldahl Nitrogen	100	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448374	NO2NO3-N	96.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448898	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P437333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448400	Acesulfame K	132	104	P/P	40 - 150
2448400	AMPA	85.8	90.3	P/P	40 - 160
2448400	Endothall	101	97.0	P/P	40 - 160
2448400	Glufosinate	96.2	101	P/P	40 - 160
2448400	Glyphosate	99.5	101	P/P	40 - 160
2448400	Sucralose	96.2	78.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P437434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448400	2,4-D	62.5	58.8	P/P	40 - 150
2448400	2,4,5-T	58.0	57.3	P/P	40 - 150
2448400	Acetaminophen	57.5	56.3	P/P	30 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P437434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448400	Acetamiprid	48.6	49.1	P/P	40 - 150
2448400	Afidopyropen	65.2	63.2	P/P	30 - 150
2448400	Bentazon	26.7	25.1	F/F	30 - 150
2448400	Benzovindiflupyr	78.2	79.5	P/P	40 - 150
2448400	Carbamazepine	60.9	58.9	P/P	40 - 150
2448400	Clothianidin	55.9	54.8	P/P	40 - 150
2448400	Dinotefuran	48.1	47.9	P/P	40 - 150
2448400	Diuron	53.9	52.0	P/P	40 - 150
2448400	Fenuron	41.1	40.2	P/P	40 - 150
2448400	Fluridone	52.7	53.3	P/P	40 - 150
2448400	Hydrocodone	55.9	54.4	P/P	40 - 150
2448400	Ibuprofen	38.4	43.2	F/P	40 - 150
2448400	Imazapyr	58.4	54.4	P/P	40 - 150
2448400	Imidacloprid	74.2	72.4	P/P	40 - 150
2448400	Linuron	54.8	54.9	P/P	40 - 150
2448400	Mandestrobin	81.7	74.7	P/P	40 - 150
2448400	MCPP	64.8	61.0	P/P	40 - 150
2448400	Naproxen	43.7	46.5	P/P	40 - 150
2448400	Primidone	58.1	59.3	P/P	40 - 150
2448400	Pyraclostrobin	76.0	78.5	P/P	40 - 150
2448400	Silvex	65.0	57.2	P/P	40 - 150
2448400	Thiamethoxam	56.2	56.9	P/P	40 - 150
2448400	Tolfenpyrad	50.1	49.4	P/P	30 - 150
2448400	Triclopyr	63.3	57.8	P/P	40 - 150

Reference Method: SM 4500-F- C-2011

Batch ID: P437402

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448639	Fluoride	102	100	P/P	94 - 106

Reference Method: SM 5310 B-2011

Batch ID: P437452

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2448516	Organic Carbon	97.1	97.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P437299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448520	Color (true)	1.89	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P437291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448475	Turbidity	0.215	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448448	Chloride	1.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P437830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448448	Sulfate	2.27	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P437430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448478	Ammonia-N	2.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P437455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448707	Kjeldahl Nitrogen	1.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P437605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448374	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P438172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448898	Total-P	0.801	Spike	P	0 - 20

Quality Assurance Report

Precision

Reference Method: EPA 8321B

Batch ID: P437333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448400	Acesulfame K	23.3	Spike	P	0 - 30
2448400	AMPA	4.90	Spike	P	0 - 30
2448400	Endothall	3.71	Spike	P	0 - 30
2448400	Glufosinate	4.72	Spike	P	0 - 30
2448400	Glyphosate	1.63	Spike	P	0 - 30
2448400	Sucralose	15.0	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P437434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448400	2,4-D	5.71	Spike	P	0 - 30
2448400	2,4,5-T	1.13	Spike	P	0 - 30
2448400	Acetaminophen	2.20	Spike	P	0 - 30
2448400	Acetamiprid	0.954	Spike	P	0 - 30
2448400	Afidopyropen	3.09	Spike	P	0 - 30
2448400	Bentazon	6.14	Spike	P	0 - 30
2448400	Benzovindiflupyr	1.57	Spike	P	0 - 30
2448400	Carbamazepine	3.43	Spike	P	0 - 30
2448400	Clothianidin	1.99	Spike	P	0 - 30
2448400	Dinotefuran	0.340	Spike	P	0 - 30
2448400	Diuron	3.52	Spike	P	0 - 30
2448400	Fenuron	2.17	Spike	P	0 - 30
2448400	Fluridone	1.25	Spike	P	0 - 30
2448400	Hydrocodone	2.68	Spike	P	0 - 30
2448400	Ibuprofen	11.8	Spike	P	0 - 30
2448400	Imazapyr	3.40	Spike	P	0 - 30
2448400	Imidacloprid	2.26	Spike	P	0 - 30
2448400	Linuron	0.170	Spike	P	0 - 30
2448400	Mandestrobin	9.01	Spike	P	0 - 30
2448400	MCPP	6.03	Spike	P	0 - 30
2448400	Naproxen	6.04	Spike	P	0 - 30
2448400	Primidone	1.95	Spike	P	0 - 30
2448400	Pyraclostrobin	3.32	Spike	P	0 - 30
2448400	Silvex	12.9	Spike	P	0 - 30
2448400	Thiamethoxam	1.20	Spike	P	0 - 30
2448400	Tolfenpyrad	1.37	Spike	P	0 - 30
2448400	Triclopyr	9.08	Spike	P	0 - 30

Reference Method: SM 2320 B-2011

Batch ID: P437542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448552	Total Alkalinity	0.203	Sample	P	0 - 3.9

Quality Assurance Report Precision

Reference Method: SM 2540 C-2015
Batch ID: P437814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448520	TDS	2.07	Sample	P	0 - 10

Reference Method: SM 2540 D-2015
Batch ID: P437781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448520	TSS	8.22	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P437402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448639	Fluoride	1.47	Spike	P	0 - 1.9

Reference Method: SM 5310 B-2011
Batch ID: P437452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2448516	Organic Carbon	0.381	Spike	P	0 - 20

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

Quality Assurance Report Surrogates

Lab Sample ID: 2448543
Field Sample ID: G4CE0248

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	2,4-D-d3	60.9	P	30 - 160
EPA 8321B	Acetaminophen-d4	36.6	P	30 - 160
EPA 8321B	Carbamazepine-d10	47.4	P	30 - 160
EPA 8321B	Diuron-d6	39.0	P	30 - 160
EPA 8321B	Endothall-d6	124	P	30 - 160
EPA 8321B	Glyphosate 13C 15N	100	P	30 - 160
EPA 8321B	Ibuprofen-d3	40.7	P	30 - 160
EPA 8321B	Primidone-d5	40.3	P	30 - 160
EPA 8321B	Sucralose-d6	94.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A122520
Included Lab Sample IDs: 2448520

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

Reference Method: DEP SOP: NU-094-1
Run ID: A122524
Included Lab Sample IDs: 2448520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A122565
Included Lab Sample IDs: 2448520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A122575
Included Lab Sample IDs: 2448521

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

Reference Method: SM 5310 B-2011
Run ID: A122586
Included Lab Sample IDs: 2448521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.8	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A122607
Included Lab Sample IDs: 2448543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
AMPA	100	102	P/P	60 - 160
Endothall	98.3	97.0	P/P	60 - 160
Glufosinate	95.5	93.5	P/P	60 - 160
Glyphosate	97.2	99.1	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A122608
Included Lab Sample IDs: 2448543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acesulfame K	90.7	110	P/P	60 - 160
Sucralose	92.3	93.5	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A122610

Included Lab Sample IDs: 2448520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	103	P/P	90 - 110
Sulfate	100	104	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A122617

Included Lab Sample IDs: 2448520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122632

Included Lab Sample IDs: 2448521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.8	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122638

Included Lab Sample IDs: 2448521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	98.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A122692

Included Lab Sample IDs: 2448543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	63.7	62.6	P/P	50 - 150
2,4,5-T	73.5	68.8	P/P	50 - 150
Acetaminophen	110	102	P/P	60 - 160
Acetamiprid	112	112	P/P	50 - 150
Afidopyropen	115	109	P/P	50 - 150
Bentazon	76.6	66.4	P/P	50 - 160
Benzovindiflupyr	99.2	103	P/P	50 - 150
Carbamazepine	113	118	P/P	60 - 150
Clothianidin	114	111	P/P	60 - 150
Dinotefuran	109	106	P/P	50 - 150
Diuron	116	114	P/P	60 - 160
Fenuron	111	110	P/P	60 - 150
Fluridone	114	97.7	P/P	60 - 160
Hydrocodone	117	120	P/P	60 - 150
Ibuprofen	99.7	89.2	P/P	50 - 160
Imazapyr	71.1	64.1	P/P	50 - 150
Imidacloprid	97.0	95.8	P/P	60 - 150
Linuron	99.7	90.6	P/P	60 - 150
Mandestrobin	107	98.9	P/P	50 - 150
MCPP	77.2	67.1	P/P	50 - 150
Naproxen	74.3	69.3	P/P	50 - 160
Primidone	97.6	101	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A122692
Included Lab Sample IDs: 2448543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Pyraclostrobin	107	106	P/P	60 - 150
Silvex	79.2	73.1	P/P	50 - 150
Thiamethoxam	118	112	P/P	50 - 150
Tolfenpyrad	93.2	91.2	P/P	60 - 150
Triclopyr	68.6	64.4	P/P	50 - 150

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A122902
Included Lab Sample IDs: 2448521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.8	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
DEP SOP: NU-094-1	Color (true)	99.7			1.89	
EPA 180.1 Rev. 2.0	Turbidity	104			0.215	
EPA 300.0 Rev. 2.1	Chloride	103	107	104	1.90	
	Sulfate	104	107	104	2.27	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	95.0	97.6		2.16
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.5	100	97.7		1.80
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	96.5	97.5		1.03
EPA 365.1 Rev. 2.0	Total-P	104	102	102		0.801
EPA 8321B	2,4-D	66.8	62.5	58.8		5.71
	2,4,5-T	50.3	58.0	57.3		1.13
	Acesulfame K	86.3	132	104		23.3
	Acetaminophen	94.2	56.3	57.5		2.20
	Acetamiprid	93.2	49.1	48.6		0.954
	Afidopyropen	59.6	63.2	65.2		3.09
	AMPA	91.4	85.8	90.3		4.90
	Bentazon	64.7	25.1	26.7		6.14
	Benzovindiflupyr	87.2	79.5	78.2		1.57
	Carbamazepine	94.1	58.9	60.9		3.43
	Clothianidin	97.5	54.8	55.9		1.99
	Dinotefuran	95.8	47.9	48.1		0.340
	Diuron	85.4	52.0	53.9		3.52
	Endothall	91.7	101	97.0		3.71
	Fenuron	102	40.2	41.1		2.17
	Fluridone	87.8	53.3	52.7		1.25
	Glufosinate	99.4	96.2	101		4.72
	Glyphosate	94.5	99.5	101		1.63
	Hydrocodone	103	54.4	55.9		2.68
	Ibuprofen	47.9	38.4	43.2		11.8
	Imazapyr	61.0	54.4	58.4		3.40
	Imidacloprid	87.1	72.4	74.2		2.26
	Linuron	75.7	54.9	54.8		0.170
	Mandestrobin	88.0	74.7	81.7		9.01
	MCPP	61.5	64.8	61.0		6.03
	Naproxen	41.3	43.7	46.5		6.04
	Primidone	89.3	59.3	58.1		1.95
	Pyraclostrobin	83.5	78.5	76.0		3.32
	Silvex	54.1	65.0	57.2		12.9
	Sucralose	82.4	96.2	78.5		15.0
	Thiamethoxam	96.5	56.9	56.2		1.20
	Tolfenpyrad	49.2	49.4	50.1		1.37
	Triclopyr	58.2	63.3	57.8		9.08
SM 2320 B-2011	Total Alkalinity	98.4			0.203	
SM 2540 C-2015	TDS	97.2			2.07	
SM 2540 D-2015	TSS	106			8.22	
SM 4500-F- C-2011	Fluoride	103	102	100		1.47
SM 5310 B-2011	Organic Carbon	97.3	97.1	97.8		0.381

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2448520
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2448520
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2448520

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2448520
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2448521
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2448521
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2448521
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2448521
EPA 8321B	Pesticides, herbicides, and other chemicals in water matrices by HPLC/MS/MS	2448543
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2448520
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2448520
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2448520
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2448520
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2448521

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	11/02/2023			11/02/2023 15:55	Anna M. Plaviak	2448520
EPA 180.1 Rev. 2.0	11/02/2023			11/02/2023 14:51	Khloe J Berg	2448520
EPA 300.0 Rev. 2.1	11/02/2023			11/09/2023 09:23	James L Waggeberby	2448520
EPA 350.1 Rev. 2.0	11/02/2023			11/06/2023 13:31	Khloe J Berg	2448521
EPA 351.2 Rev. 2.0	11/02/2023	11/07/2023 12:15	Simonne.V. Calhoun	11/08/2023 13:21	Samantha L Bates	2448521
EPA 353.2 Rev. 2.0	11/02/2023			11/08/2023 13:56	Fadila Guebre	2448521
EPA 365.1 Rev. 2.0	11/02/2023	11/27/2023 15:29	Adam P Silver	11/28/2023 09:48	James L Waggeberby	2448521
EPA 8321B	11/02/2023	11/07/2023 08:00	Hana Lee	11/07/2023 12:07	Tae K Lee	2448543
	11/02/2023	11/07/2023 08:00	Hana Lee	11/07/2023 15:53	Tae K Lee	2448543
	11/02/2023	11/08/2023 09:00	Hoor Shaik	11/09/2023 02:40	Juyoung Kim	2448543
SM 2320 B-2011	11/02/2023			11/07/2023 23:51	Chandler E Cox	2448520
SM 2540 C-2015	11/02/2023			11/07/2023 15:38	Yijie Li	2448520
SM 2540 D-2015	11/02/2023			11/07/2023 15:38	Yijie Li	2448520
SM 4500-F- C-2011	11/02/2023			11/04/2023 08:45	Chandler E Cox	2448520
SM 5310 B-2011	11/02/2023			11/04/2023 06:29	Elise M. Gillis	2448521