From: Camden Wastewater Treatment Fa
To: Water Permits
Subject: [EXTERNAL] Camden Sewer Treatment Plant NPDES Permit Renewal
Date: Tuesday, May 30, 2023 8:57:45 AM

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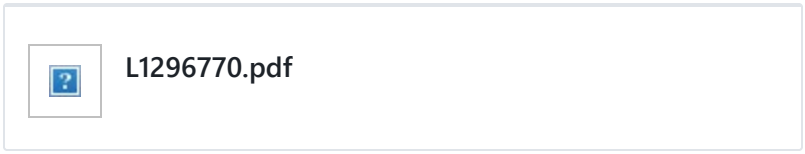

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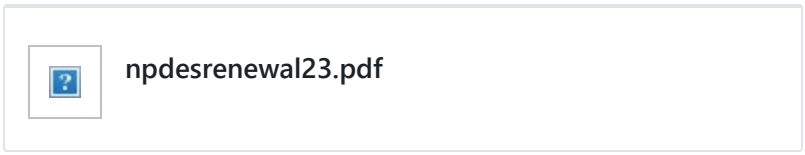

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I have attached the permit along with the biomonitoring reports for you review.

David Tuck
City of Camden
Waste Water Plant Supervisor
Pretreatment Coordinator
731-584-7986
cityofcamden2@bellsouth.net

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	TN 0064611	City of Camden Sewer Treatment Facility	

Form 2A NPDES | EPA

U.S. Environmental Protection Agency
Application for NPDES Permit to Discharge Wastewater
NEW AND EXISTING PUBLICLY OWNED TREATMENT WORKS

SECTION 1. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS (40 CFR 122.21(j)(1) and (9))

Facility Information

1.1 Facility name
City of Camden Sewer Treatment Plant

Mailing address (street or P.O. box)
P.O. Box 779

City or town	State	ZIP code
Camden	Tennessee	38320

Contact name (first and last)	Title	Phone number	Email address
John Beasley	Superintendent	(731) 584-4656	johnwbeasley@bellsouth.net

Location address (street, route number, or other specific identifier) ☐ Same as mailing address
395 Hildon King Road

City or town	State	ZIP code
Camden	Tennessee	38320

1.2 Is this application for a facility that has yet to commence discharge?
☐ Yes ➔ See instructions on data submission requirements for new dischargers. ☑ No

Applicant Information

1.3 Is applicant different from entity listed under Item 1.1 above?
☐ Yes ☑ No ➔ SKIP to Item 1.4.

Applicant name

Applicant address (street or P.O. box)

City or town	State	ZIP code

Contact name (first and last)	Title	Phone number	Email address

1.4 Is the applicant the facility's owner, operator, or both? (Check only one response.)
☐ Owner ☐ Operator ☑ Both

1.5 To which entity should the NPDES permitting authority send correspondence? (Check only one response.)
☑ Facility ☐ Applicant ☐ Facility and applicant (they are one and the same)

Existing Environmental Permits

1.6 Indicate below any existing environmental permits. (Check all that apply and print or type the corresponding permit number for each.)

Existing Environmental Permits

☑ NPDES (discharges to surface water) TN 0064611	☐ RCRA (hazardous waste)	☐ UIC (underground injection control)
☐ PSD (air emissions)	☐ Nonattainment program (CAA)	☐ NESHAPs (CAA)
☐ Ocean dumping (MPRSA)	☐ Dredge or fill (CWA Section 404)	☑ Other (specify) TN SOP 15022

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	TN 0064611	City of Camden Sewer Treatment Facility	

Collection System and Population Served

1.7 Provide the collection system information requested below for the treatment works.

Municipality Served	Population Served	Collection System Type (indicate percentage)	Ownership Status
City of Camden	4000	100 % separate sanitary sewer	☑ Own ☐ Maintain
		____ % combined storm and sanitary sewer	☐ Own ☐ Maintain
		☐ Unknown	☐ Own ☐ Maintain
		____ % separate sanitary sewer	☐ Own ☐ Maintain
		____ % combined storm and sanitary sewer	☐ Own ☐ Maintain
		☐ Unknown	☐ Own ☐ Maintain
		____ % separate sanitary sewer	☐ Own ☐ Maintain
		____ % combined storm and sanitary sewer	☐ Own ☐ Maintain
		☐ Unknown	☐ Own ☐ Maintain
		____ % separate sanitary sewer	☐ Own ☐ Maintain
		____ % combined storm and sanitary sewer	☐ Own ☐ Maintain
		☐ Unknown	☐ Own ☐ Maintain
Total Population Served	4000		

	Separate Sanitary Sewer System	Combined Storm and Sanitary Sewer
Total percentage of each type of sewer line (in miles)	100 %	%

Indian Country

1.8 Is the treatment works located in Indian Country?

☐ Yes ☑ No

1.9 Does the facility discharge to a receiving water that flows through Indian Country?

☐ Yes ☑ No

Design and Actual Flow Rates

1.10 Provide design *and* actual flow rates in the designated spaces.

Design Flow Rate
.500 mgd

Annual Average Flow Rates (Actual)		
Two Years Ago	**Last Year**	**This Year**
.864 mgd	.725 mgd	1.085 mgd

Maximum Daily Flow Rates (Actual)		
Two Years Ago	**Last Year**	**This Year**
3.578 mgd	2.960 mgd	2.561 mgd

Discharge Points by Type

1.11 Provide the total number of effluent discharge points to waters of the United States by type.

Total Number of Effluent Discharge Points by Type				
Treated Effluent	**Untreated Effluent**	**Combined Sewer Overflows**	**Bypasses**	**Constructed Emergency Overflows**
1	0	0	0	0

Outfalls and Other Discharge or Disposal Methods

Outfalls Other Than to Waters of the United States

1.12 Does the POTW discharge wastewater to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the United States?

☐ Yes ☑ No ➔ SKIP to Item 1.14.

1.13 Provide the location of each surface impoundment and associated discharge information in the table below.

Surface Impoundment Location and Discharge Data

Location	Average Daily Volume Discharged to Surface Impoundment	Continuous or Intermittent (check one)
	gpd	☐ Continuous ☐ Intermittent
	gpd	☐ Continuous ☐ Intermittent
	gpd	☐ Continuous ☐ Intermittent

1.14 Is wastewater applied to land?

☑ Yes ☐ No ➔ SKIP to Item 1.16.

1.15 Provide the land application site and discharge data requested below.

Land Application Site and Discharge Data

Location	Size	Average Daily Volume Applied	Continuous or Intermittent (check one)
Hargis Road (Map 64,Parcel 11.00 and 14.00)	300.00 acres	386,767 gpd	☐ Continuous ☑ Intermittent
	acres	gpd	☐ Continuous ☐ Intermittent
	acres	gpd	☐ Continuous ☐ Intermittent

1.16 Is effluent transported to another facility for treatment prior to discharge?

☐ Yes ☑ No ➔ SKIP to Item 1.21.

1.17 Describe the means by which the effluent is transported (e.g., tank truck, pipe).

1.18 Is the effluent transported by a party other than the applicant?

☐ Yes ☐ No ➔ SKIP to Item 1.20.

1.19 Provide information on the transporter below.

Transporter Data

Entity name	Mailing address (street or P.O. box)	
City or town	State	ZIP code
Contact name (first and last)	Title	
Phone number	Email address	

Outfalls and Other Discharge or Disposal Methods Continued

1.20 In the table below, indicate the name, address, contact information, NPDES number, and average daily flow rate of the receiving facility.

Receiving Facility Data

Facility name	Mailing address (street or P.O. box)	
City or town	State	ZIP code
Contact name (first and last)	Title	
Phone number	Email address	
NPDES number of receiving facility (if any) ☐ None	Average daily flow rate	mgd

1.21 Is the wastewater disposed of in a manner other than those already mentioned in Items 1.14 through 1.21 that do not have outlets to waters of the United States (e.g., underground percolation, underground injection)?

☐ Yes ☑ No ➔ SKIP to Item 1.23.

1.22 Provide information in the table below on these other disposal methods.

Information on Other Disposal Methods

Disposal Method Description	Location of Disposal Site	Size of Disposal Site	Annual Average Daily Discharge Volume	Continuous or Intermittent (check one)
		acres	gpd	☐ Continuous ☐ Intermittent
		acres	gpd	☐ Continuous ☐ Intermittent
		acres	gpd	☐ Continuous ☐ Intermittent

Variance Requests

1.23 Do you intend to request or renew one or more of the variances authorized at 40 CFR 122.21(n)? (Check all that apply. Consult with your NPDES permitting authority to determine what information needs to be submitted and when.)

☐ Discharges into marine waters (CWA Section 301(h))

☐ Water quality related effluent limitation (CWA Section 302(b)(2))

☑ Not applicable

Contractor Information

1.24 Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor?

☐ Yes ☑ No ➔ SKIP to Section 2.

1.25 Provide location and contact information for each contractor in addition to a description of the contractor's operational and maintenance responsibilities.

Contractor Information

	Contractor 1	Contractor 2	Contractor 3
Contractor name (company name)			
Mailing address (street or P.O. box)			
City, state, and ZIP code			
Contact name (first and last)			
Phone number			
Email address			
Operational and maintenance responsibilities of contractor			

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	TN 0064611	City of Camden Sewer Treatment Facility	

SECTION 2. ADDITIONAL INFORMATION (40 CFR 122.21(j)(1) and (2))

Design Flow

Outfalls to Waters of the United States

2.1 Does the treatment works have a design flow greater than or equal to 0.1 mgd?

☑ Yes ☐ No ➔ SKIP to Section 3.

Inflow and Infiltration

2.2 Provide the treatment works' current average daily volume of inflow and infiltration.

Average Daily Volume of Inflow and Infiltration
1500 gpd

Indicate the steps the facility is taking to minimize inflow and infiltration.

Routine evaluation and maintenance of the collection system.

Topographic Map

2.3 Have you attached a topographic map to this application that contains all the required information? (See instructions for specific requirements.)

☑ Yes ☐ No

Flow Diagram

2.4 Have you attached a process flow diagram or schematic to this application that contains all the required information? (See instructions for specific requirements.)

☑ Yes ☐ No

Scheduled Improvements and Schedules of Implementation

2.5 Are improvements to the facility scheduled?

☐ Yes ☑ No ➔ SKIP to Section 3.

Briefly list and describe the scheduled improvements.

1.

2.

3.

4.

2.6 Provide scheduled or actual dates of completion for improvements.

Scheduled or Actual Dates of Completion for Improvements

Scheduled Improvement (from above)	Affected Outfalls (list outfall number)	Begin Construction (MM/DD/YYYY)	End Construction (MM/DD/YYYY)	Begin Discharge (MM/DD/YYYY)	Attainment of Operational Level (MM/DD/YYYY)
1.					
2.					
3.					
4.					

2.7 Have appropriate permits/clearances concerning other federal/state requirements been obtained? Briefly explain your response.

☐ Yes ☐ No ☑ None required or applicable

Explanation:

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	TN 0064611	City of Camden Sewer Treatment Facility	

SECTION 3. INFORMATION ON EFFLUENT DISCHARGES (40 CFR 122.21(j)(3) to (5))

Description of Outfalls

3.1 Provide the following information for each outfall. (Attach additional sheets if you have more than three outfalls.)

	Outfall Number 001	Outfall Number ____	Outfall Number ____
State	Tennessee		
County	Benton		
City or town	Camden		
Distance from shore	ft.	ft.	ft.
Depth below surface	ft.	ft.	ft.
Average daily flow rate	mgd	mgd	mgd
Latitude	36° 02′ 51.21″	° ′ ″	° ′ ″
Longitude	88° 4′ 29.13″	° ′ ″	° ′ ″

Seasonal or Periodic Discharge Data

3.2 Do any of the outfalls described under Item 3.1 have seasonal or periodic discharges?

☑ Yes ☐ No ➔ SKIP to Item 3.4.

3.3 If so, provide the following information for each applicable outfall.

	Outfall Number ____	Outfall Number ____	Outfall Number ____
Number of times per year discharge occurs	9		
Average duration of each discharge (specify units)	7		
Average flow of each discharge	1.085 mgd	mgd	mgd
Months in which discharge occurs	9		

Diffuser Type

3.4 Are any of the outfalls listed under Item 3.1 equipped with a diffuser?

☐ Yes ☑ No ➔ SKIP to Item 3.6.

3.5 Briefly describe the diffuser type at each applicable outfall.

	Outfall Number ____	Outfall Number ____	Outfall Number ____

Waters of the U.S.

3.6 Does the treatment works discharge or plan to discharge wastewater to waters of the United States from one or more discharge points?

☑ Yes ☐ No ➔ SKIP to Section 6.

Receiving Water Description

3.7 Provide the receiving water and related information (if known) for each outfall.

	Outfall Number ____	Outfall Number ____	Outfall Number ____
Receiving water name	Cypress Creek at mile 12.8		
Name of watershed, river, or stream system	ssee Western Valley (Kentud^		
U.S. Soil Conservation Service 14-digit watershed code			
Name of state management/river basin	Tennessee River		
U.S. Geological Survey 8-digit hydrologic cataloging unit code	03605078		
Critical low flow (acute)	1.7 cfs	cfs	cfs
Critical low flow (chronic)	cfs	cfs	cfs
Total hardness at critical low flow	mg/L of $CaCO_3$	mg/L of $CaCO_3$	mg/L of $CaCO_3$

Treatment Description

3.8 Provide the following information describing the treatment provided for discharges from each outfall.

	Outfall Number ____	Outfall Number ____	Outfall Number ____
Highest Level of Treatment (check all that apply per outfall)	☑ Primary ☐ Equivalent to secondary ☑ Secondary ☐ Advanced ☐ Other (specify) _____	☐ Primary ☐ Equivalent to secondary ☐ Secondary ☐ Advanced ☐ Other (specify) _____	☐ Primary ☐ Equivalent to secondary ☐ Secondary ☐ Advanced ☐ Other (specify) _____
Design Removal Rates by Outfall			
BOD_5 or $CBOD_5$	65 %	%	%
TSS	65 %	%	%
Phosphorus	☑ Not applicable %	☐ Not applicable %	☐ Not applicable %
Nitrogen	☑ Not applicable %	☐ Not applicable %	☐ Not applicable %
Other (specify) _____	☐ Not applicable %	☐ Not applicable %	☐ Not applicable %

Treatment Description Continued

3.9 Describe the type of disinfection used for the effluent from each outfall in the table below. If disinfection varies by season, describe below.

	Outfall Number ____	Outfall Number ____	Outfall Number ____
Disinfection type	Sodium Hypochlorite		
Seasons used	ALL		
Dechlorination used?	☐ Not applicable ☑ Yes ☐ No	☐ Not applicable ☐ Yes ☐ No	☐ Not applicable ☐ Yes ☐ No

Effluent Testing Data

3.10 Have you completed monitoring for all Table A parameters and attached the results to the application package?

☑ Yes ☐ No

3.11 Have you conducted any WET tests during the 4.5 years prior to the date of the application on any of the facility's discharges or on any receiving water near the discharge points?

☑ Yes ☐ No ➔ SKIP to Item 3.13.

3.12 Indicate the number of acute and chronic WET tests conducted since the last permit reissuance of the facility's discharges by outfall number or of the receiving water near the discharge points.

	Outfall Number 001		Outfall Number ____		Outfall Number ____	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Number of tests of discharge water		4				
Number of tests of receiving water		0				

3.13 Does the treatment works have a design flow greater than or equal to 0.1 mgd?

☑ Yes ☐ No ➔ SKIP to Item 3.16.

3.14 Does the POTW use chlorine for disinfection, use chlorine elsewhere in the treatment process, or otherwise have reasonable potential to discharge chlorine in its effluent?

☑ Yes ➔ Complete Table B, including chlorine. ☐ No ➔ Complete Table B, omitting chlorine.

3.15 Have you completed monitoring for all applicable Table B pollutants and attached the results to this application package?

☑ Yes ☐ No

3.16 Does one or more of the following conditions apply?

- The facility has a design flow greater than or equal to 1 mgd.
- The POTW has an approved pretreatment program or is required to develop such a program.
- The NPDES permitting authority has informed the POTW that it must sample for the parameters in Table C, must sample other additional parameters (Table D), or submit the results of WET tests for acute or chronic toxicity for each of its discharge outfalls (Table E).

☑ Yes ➔ Complete Tables C, D, and E as applicable. ☐ No ➔ SKIP to Section 4.

3.17 Have you completed monitoring for all applicable Table C pollutants and attached the results to this application package?

☑ Yes ☐ No

3.18 Have you completed monitoring for all applicable Table D pollutants required by your NPDES permitting authority and attached the results to this application package?

☐ Yes ☑ No additional sampling required by NPDES permitting authority.

Effluent Testing Data Continued

3.19 Has the POTW conducted either (1) minimum of four quarterly WET tests for one year preceding this permit application or (2) at least four annual WET tests in the past 4.5 years?

☑ Yes ☐ No ➔ Complete tests and Table E and SKIP to Item 3.26.

3.20 Have you previously submitted the results of the above tests to your NPDES permitting authority?

☐ Yes ☑ No ➔ Provide results in Table E and SKIP to Item 3.26.

3.21 Indicate the dates the data were submitted to your NPDES permitting authority and provide a summary of the results.

Date(s) Submitted (MM/DD/YYYY)	Summary of Results

3.22 Regardless of how you provided your WET testing data to the NPDES permitting authority, did any of the tests result in toxicity?

☐ Yes ☐ No ➔ SKIP to Item 3.26.

3.23 Describe the cause(s) of the toxicity:

3.24 Has the treatment works conducted a toxicity reduction evaluation?

☐ Yes ☐ No ➔ SKIP to Item 3.26.

3.25 Provide details of any toxicity reduction evaluations conducted.

3.26 Have you completed Table E for all applicable outfalls and attached the results to the application package?

☑ Yes ☐ Not applicable because previously submitted information to the NPDES permitting authority.

SECTION 4. INDUSTRIAL DISCHARGES AND HAZARDOUS WASTES (40 CFR 122.21(j)(6) and (7))

Industrial Discharges and Hazardous Wastes

4.1 Does the POTW receive discharges from SIUs or NSCIUs?

☐ Yes ☑ No ➔ SKIP to Item 4.7.

4.2 Indicate the number of SIUs and NSCIUs that discharge to the POTW.

Number of SIUs	Number of NSCIUs

4.3 Does the POTW have an approved pretreatment program?

☐ Yes ☐ No

4.4 Have you submitted either of the following to the NPDES permitting authority that contains information substantially identical to that required in Table F: (1) a pretreatment program annual report submitted within one year of the application or (2) a pretreatment program?

☐ Yes ☐ No ➔ SKIP to Item 4.6.

4.5 Identify the title and date of the annual report or pretreatment program referenced in Item 4.4. SKIP to Item 4.7.

4.6 Have you completed and attached Table F to this application package?

☐ Yes ☐ No

Industrial Discharges and Hazardous Wastes Continued

4.7 Does the POTW receive, or has it been notified that it will receive, by truck, rail, or dedicated pipe, any wastes that are regulated as RCRA hazardous wastes pursuant to 40 CFR 261?

☐ Yes ☑ No ➔ SKIP to Item 4.9.

4.8 If yes, provide the following information:

Hazardous Waste Number	Waste Transport Method (check all that apply)	Annual Amount of Waste Received	Units
	☐ Truck ☐ Rail ☐ Dedicated pipe ☐ Other (specify) _____		
	☐ Truck ☐ Rail ☐ Dedicated pipe ☐ Other (specify) _____		
	☐ Truck ☐ Rail ☐ Dedicated pipe ☐ Other (specify) _____		

4.9 Does the POTW receive, or has it been notified that it will receive, wastewaters that originate from remedial activities, including those undertaken pursuant to CERCLA and Sections 3004(7) or 3008(h) of RCRA?

☐ Yes ☑ No ➔ SKIP to Section 5.

4.10 Does the POTW receive (or expect to receive) less than 15 kilograms per month of non-acute hazardous wastes as specified in 40 CFR 261.30(d) and 261.33(e)?

☐ Yes ➔ SKIP to Section 5. ☐ No

4.11 Have you reported the following information in an attachment to this application: identification and description of the site(s) or facility(ies) at which the wastewater originates; the identities of the wastewater's hazardous constituents; and the extent of treatment, if any, the wastewater receives or will receive before entering the POTW?

☐ Yes ☐ No

SECTION 5. COMBINED SEWER OVERFLOWS (40 CFR 122.21(j)(8))

CSO Map and Diagram

5.1 Does the treatment works have a combined sewer system?

☐ Yes ☑ No ➔SKIP to Section 6.

5.2 Have you attached a CSO system map to this application? (See instructions for map requirements.)

☐ Yes ☐ No

5.3 Have you attached a CSO system diagram to this application? (See instructions for diagram requirements.)

☐ Yes ☐ No

CSO Outfall Description

5.4 For each CSO outfall, provide the following information. (Attach additional sheets as necessary.)

	CSO Outfall Number ____	CSO Outfall Number ____	CSO Outfall Number ____
City or town			
State and ZIP code			
County			
Latitude	° ′ ″	° ′ ″	° ′ ″
Longitude	° ′ ″	° ′ ″	° ′ ″
Distance from shore	ft.	ft.	ft.
Depth below surface	ft.	ft.	ft.

CSO Monitoring

5.5 Did the POTW monitor any of the following items in the past year for its CSO outfalls?

	CSO Outfall Number ____	CSO Outfall Number ____	CSO Outfall Number ____
Rainfall	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
CSO flow volume	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
CSO pollutant concentrations	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Receiving water quality	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
CSO frequency	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Number of storm events	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

CSO Events in Past Year

5.6 Provide the following information for each of your CSO outfalls.

	CSO Outfall Number ____	CSO Outfall Number ____	CSO Outfall Number ____
Number of CSO events in the past year	events	events	events
Average duration per event	hours ☐ Actual or ☐ Estimated	hours ☐ Actual or ☐ Estimated	hours ☐ Actual or ☐ Estimated
Average volume per event	million gallons ☐ Actual or ☐ Estimated	million gallons ☐ Actual or ☐ Estimated	million gallons ☐ Actual or ☐ Estimated
Minimum rainfall causing a CSO event in last year	inches of rainfall ☐ Actual or ☐ Estimated	inches of rainfall ☐ Actual or ☐ Estimated	inches of rainfall ☐ Actual or ☐ Estimated

CSO Receiving Waters

5.7 Provide the information in the table below for each of your CSO outfalls.

	CSO Outfall Number ____	CSO Outfall Number ____	CSO Outfall Number ____
Receiving water name			
Name of watershed/ stream system			
U.S. Soil Conservation Service 14-digit watershed code (if known)	☐ Unknown	☐ Unknown	☐ Unknown
Name of state management/river basin			
U.S. Geological Survey 8-Digit Hydrologic Unit Code (if known)	☐ Unknown	☐ Unknown	☐ Unknown
Description of known water quality impacts on receiving stream by CSO (see instructions for examples)			

SECTION 6. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

Checklist and Certification Statement

6.1 In Column 1 below, mark the sections of Form 2A that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to provide attachments.

Column 1	Column 2	
☑ Section 1: Basic Application Information for All Applicants	☐ w/ variance request(s)	☐ w/ additional attachments
☑ Section 2: Additional Information	☑ w/ topographic map ☐ w/ additional attachments	☑ w/ process flow diagram
☑ Section 3: Information on Effluent Discharges	☑ w/ Table A ☑ w/ Table B ☑ w/ Table C	☐ w/ Table D ☑ w/ Table E ☑ w/ additional attachments
☐ Section 4: Industrial Discharges and Hazardous Wastes	☐ w/ SIU and NSCIU attachments ☐ w/ additional attachments	☐ w/ Table F
☐ Section 5: Combined Sewer Overflows	☐ w/ CSO map ☐ w/ CSO system diagram	☐ w/ additional attachments
☑ Section 6: Checklist and Certification Statement	☐ w/ attachments	

6.2 **Certification Statement**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name (print or type first and last name)	Official title
JOHN BEASLEY	SUPERINTENDENT
Signature	**Date signed**
John W. Beasley	5-25-23

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE A. EFFLUENT PARAMETERS FOR ALL POTWS

Pollutant	Maximum Daily Discharge		Average Daily Discharge			Analytical Method[1]	ML or MDL (include units)
	Value	Units	Value	Units	Number of Samples		
Biochemical oxygen demand ☐ BOD_5 or ☐ $CBOD_5$ (report one)	22.0	mg/L	11.2	mg/L	mg/L	SM5210B-2016	1.0 ☐ ML ☐ MDL
E.coli	28.8	mg/L	6.1	mg/L		SM223	1.0 ☐ ML ☐ MDL
Design flow rate	2.56	MGD	1.54	MGD			
pH (minimum)	7.2	SU					
pH (maximum)	9.7	Su					
Temperature (winter)							
Temperature (summer)							
Total suspended solids (TSS)	68	mg/L	40.9	mg/L		SM2540d-2015	0 ☐ ML ☐ MDL

[1] Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE B. EFFLUENT PARAMETERS FOR ALL POTWS WITH A FLOW EQUAL TO OR GREATER THAN 0.1 MGD

Pollutant	Maximum Daily Discharge		Average Daily Discharge			Analytical Method[1]	ML or MDL (include units)
	Value	Units	Value	Units	Number of Samples		
Ammonia (as N)	0.333	mg/L	0.273	mg/L	3	SM4500 NH3D-2011	0.200 ☐ ML ☑ MDL
Chlorine (total residual, TRC)[2]	0.2	mg/L	0.1	mg/L		SM4500G-2011	0.05 ☐ ML ☑ MDL
Dissolved oxygen	13.2	mg/L	9.7	mg/L		SM4500 O-G 2016	1.00 ☐ ML ☑ MDL
Nitrate/nitrite	5.83	mg/L	2.53	mg/L	3	353.2	0.500 ☐ ML ☑ MDL
Kjeldahl nitrogen	6.87	mg/L	6.01	mg/L	3	EPA 351.2	1.00 ☐ ML ☑ MDL
Oil and grease	7.1	mg/L	3.5	mg/L	3	EPA 1664B	1.1 ☐ ML ☑ MDL
Phosphorus	0.663	mg/L	0.5	mg/L	3	SPA 365.1	0.200 ☐ ML ☑ MDL
Total dissolved solids	212	mg/L	184	mg/L	3	2540S- 2015	20 ☐ ML ☑ MDL

[1] Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR chapter I, subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

[2] Facilities that do not use chlorine for disinfection, do not use chlorine elsewhere in the treatment process, and have no reasonable potential to discharge chlorine in their effluent are not required to report data for chlorine.

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE C. EFFLUENT PARAMETERS FOR SELECTED POTWS

Pollutant	Maximum Daily Discharge		Average Daily Discharge			Analytical Method[1]	ML or MDL (include units)
	Value	Units	Value	Units	Number of Samples		
Metals, Cyanide, and Total Phenols							
Hardness (as $CaCO_3$)	90.0	mg/l	88.7	mg/l	3	EPA 200.8	0.059 ☐ ML ☑ MDL
Antimony, total recoverable	0.0004	mg/l	0.0004	mg/l	3	200.8	0.0003 ☐ ML ☑ MDL
Arsenic, total recoverable	0.0016	mg/l	0.0014	mg/l	3	200.8	0.0003 ☐ ML ☐ MDL
Beryllium, total recoverable	0.0001	mg/l	0.0001	mg/l	3	200.8	0.0001 ☐ ML ☑ MDL
Cadmium, total recoverable	0.00005	mg/l	0.00005	mg/l	3	200.8	0.00005 ☐ ML ☑ MDL
Chromium, total recoverable	0.0009	mg/l	0.0008	mg/l	3	200.8	0.0007 ☐ ML ☑ MDL
Copper, total recoverable	0.0027	mg/l	0.0023	mg/l	3	200.8	0.0005 ☐ ML ☑ MDL
Lead, total recoverable	0.0007	mg/l	0.0006	mg/l	3	200.8	0.0005 ☐ ML ☑ MDL
Mercury, total recoverable	0.000004	mg/l	0.00000252	mg/l	3	EPA 161E	0.0000005 ☐ ML ☑ MDL
Nickel, total recoverable	0.0017	mg/l	0.0009	mg/l	3	EPA 200.8	0.0003 ☐ ML ☑ MDL
Selenium, total recoverable	0.0005	mg/l	0.0005	mg/l	3	200.8	0.0005 ☐ ML ☑ MDL
Silver, total recoverable	0.0004	mg/l	0.00003	mg/l	3	200.8	0.00002 ☐ ML ☐ MDL
Thallium, total recoverable	0.00010	mg/l	0.00010	mg/l	3	200.8	0.00010 ☐ ML ☐ MDL
Zinc, total recoverable	0.012	mg/l	0.007	mg/l	3	200.8	0.008 ☐ ML ☐ MDL
Cyanide	0.010	mg/l	0.007	mg/l	3	200.8	0.005 ☐ ML ☐ MDL
Total phenolic compounds	0.005	mg/l	0.005	mg/l	3	420.4	0.005 ☐ ML ☐ MDL
Volatile Organic Compounds							
Acrolein	0.0054	mg/l	0.0054	mg/l	3	EPA 624.1	0.0054 ☐ ML ☐ MDL
Acrylonitrile	0.0034	mg/l	0.0034	mg/l	3	624.1	0.0034 ☐ ML ☐ MDL
Benzene	0.0004	mg/l	0.0004	mg/l	3	624.1	0.0004 ☐ ML ☐ MDL
Bromoform	0.0009	mg/l	0.0009	mg/l	3	624.1	0.0009 ☐ ML ☐ MDL

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE C. EFFLUENT PARAMETERS FOR SELECTED POTWS

Pollutant	Maximum Daily Discharge		Average Daily Discharge			Analytical Method[1]	ML or MDL (include units)
	Value	Units	Value	Units	Number of Samples		
Carbon tetrachloride	0.0005	mg/l	0.0005	mg/L	3	624.1	0.0005 ☐ ML ☐ MDL
Chlorobenzene	0.0005	mg/l	0.0005	mg/L	3	624.1	0.0005 ☐ ML ☐ MDL
Chlorodibromomethane	0.0008	mg/l	0.0008	mg/L	3	624.1	0.0008 ☐ ML ☐ MDL
Chloroethane	0.0006	mg/l	0.0006	mg/L	3	624.1	0.0006 ☐ ML ☐ MDL
2-chloroethylvinyl ether	0.0026	mg/l	0.0026	mg/L	3	624.1	0.0026 ☐ ML ☐ MDL
Chloroform	0.0008	mg/l	0.0008	mg/L	3	624.1	0.0008 ☐ ML ☐ MDL
Dichlorobromomethane	0.0006	mg/l	0.0006	mg/L	3	624.1	0.0006 ☐ ML ☐ MDL
1,1-dichloroethane	0.0004	mg/l	0.0004	mg/L	3	624.1	0.0004 ☐ ML ☐ MDL
1,2-dichloroethane	0.0008	mg/l	0.0008	mg/L	3	624.1	0.0008 ☐ ML ☐ MDL
trans-1,2-dichloroethylene	0.0005	mg/l	0.0005	mg/L	3	624.1	0.0005 ☐ ML ☐ MDL
1,1-dichloroethylene	0.0005	mg/L	0.0005	mg/L	3	624.1	0.0005 ☐ ML ☐ MDL
1,2-dichloropropane	0.0005	mg/L	0.0005	mg/L	3	624.1	0.0005 ☐ ML ☐ MDL
1,3-dichloropropylene	0.0007	mg/L	0.0007	mg/L	3	624.1	0.0007 ☐ ML ☐ MDL
Ethylbenzene	0.0005	mg/L	0.0005	mg/L	3	624.1	0.0005 ☐ ML ☐ MDL
Methyl bromide	0.0009	mg/L	0.0009	mg/L	3	624.1	0.0009 ☐ ML ☐ MDL
Methyl chloride	0.0009	mg/L	0.0009	mg/L	3	624.1	0.0009 ☐ ML ☐ MDL
Methylene chloride	0.0019	mg/L	0.0019	mg/L	3	624.1	0.0019 ☐ ML ☐ MDL
1,1,2,2-tetrachloroethane	0.0009	mg/L	0.0009	mg/L	3	624.1	0.0009 ☐ ML ☐ MDL
Tetrachloroethylene	0.0004	mg/L	0.0004	mg/L	3	624.1	0.0004 ☐ ML ☐ MDL
Toluene	0.0004	mg/L	0.0004	mg/L	3	624.1	0.0004 ☐ ML ☐ MDL
1,1,1-trichloroethane	0.0004	mg/L	0.0004	mg/L	3	624.1	0.0004 ☐ ML ☐ MDL
1,1,2-trichloroethane	0.0006	mg/L	0.0006	mg/L	3	624.1	0.0006 ☐ ML ☐ MDL

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE C. EFFLUENT PARAMETERS FOR SELECTED POTWS

Pollutant	Maximum Daily Discharge		Average Daily Discharge			Analytical Method[1]	ML or MDL (include units)
	Value	Units	Value	Units	Number of Samples		
Trichloroethylene	0.0006	mg/L	0.0006	mg/L	3	624.1	0.0006 ☐ ML ☐ MDL
Vinyl chloride	0.0004	mg/L	0.0004	mg/L	3	624.1	0.0004 ☐ ML ☐ MDL
Acid-Extractable Compounds							
p-chloro-m-cresol	0.0003	mg/L	0.0007	mg/L	3	EPA 625.1	0.0003 ☐ ML ☐ MDL
2-chlorophenol	0.0009	mg/L	0.0009	mg/L	3	625.1	0.0002 ☐ ML ☐ MDL
2,4-dichlorophenol	0.007	mg/L	0.005	mg/L	3	625.1	0.001 ☐ ML ☐ MDL
2,4-dimethylphenol	0.0004	mg/L	0.0008	mg/L	3	625.1	0.0004 ☐ ML ☐ MDL
4,6-dinitro-o-cresol	0.036	mg/L	0.026	mg/L	3	625.1	0.007 ☐ ML ☐ MDL
2,4-dinitrophenol	0.094	mg/L	0.069	mg/L	3	625.1	0.020 ☐ ML ☐ MDL
2-nitrophenol	0.001	mg/L	0.0008	mg/L	3	625.1	0.0004 ☐ ML ☐ MDL
4-nitrophenol	0.017	mg/L	0.012	mg/L	3	625.1	0.003 ☐ ML ☐ MDL
Pentachlorophenol	0.009	mg/L	0.007	mg/L	3	625.1	0.002 ☐ ML ☐ MDL
Phenol	0.001	mg/L	0.00007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
2,4,6-trichlorophenol	0.003	mg/L	0.0022	mg/L	3	625.1	0.0007 ☐ ML ☐ MDL
Base-Neutral Compounds							
Acenaphthene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Acenaphthylene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Anthracene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Benzidine	0.056	mg/L	0.041	mg/L	3	625.1	0.012 ☐ ML ☐ MDL
Benzo(a)anthracene	0.0009	mg/L	0.0006	mg/L	3	625.1	0.0002 ☐ ML ☐ MDL
Benzo(a)pyrene	0.004	mg/L	0.0029	mg/L	3	625.1	0.0009 ☐ ML ☐ MDL
3,4-benzofluoranthene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE C. EFFLUENT PARAMETERS FOR SELECTED POTWS

Pollutant	Maximum Daily Discharge		Average Daily Discharge			Analytical Method[1]	ML or MDL (include units)
	Value	Units	Value	Units	Number of Samples		
Benzo(ghi)perylene	0.004	mg/L	0.0027	mg/L	3	625.1	0.001 ☐ ML ☐ MDL
Benzo(k)fluoranthene	0.003	mg/L	0.0023	mg/L	3	625.1	0.0008 ☐ ML ☐ MDL
Bis (2-chloroethoxy) methane	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Bis (2-chloroethyl) ether	0.001	mg/L	0.0008	mg/L	3	625.1	0.0004 ☐ ML ☐ MDL
Bis (2-chloroisopropyl) ether	0.002	mg/L	0.0015	mg/L	3	625.1	0.0005 ☐ ML ☐ MDL
Bis (2-ethylhexyl) phthalate	0.003	mg/L	0.0022	mg/L	3	625.1	0.0007 ☐ ML ☐ MDL
4-bromophenyl phenyl ether	0.001	mg/L	0.0008	mg/L	3	625.1	0.0004 ☐ ML ☐ MDL
Butyl benzyl phthalate	0.002	mg/L	0.0015	mg/L	3	625.1	0.0006 ☐ ML ☐ MDL
2-chloronaphthalene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
4-chlorophenyl phenyl ether	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Chrysene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
di-n-butyl phthalate	0.002	mg/L	0.0015	mg/L	3	625.1	0.0005 ☐ ML ☐ MDL
di-n-octyl phthalate	0.002	mg/L	0.0015	mg/L	3	625.1	0.0006 ☐ ML ☐ MDL
Dibenzo(a,h)anthracene	0.005	mg/L	0.0004	mg/L	3	625.1	0.001 ☐ ML ☐ MDL
1,2-dichlorobenzene	0.001	mg/L	0.0008	mg/L	3	625.1	0.0004 ☐ ML ☐ MDL
1,3-dichlorobenzene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
1,4-dichlorobenzene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
3,3-dichlorobenzidine	0.040	mg/L	0.029	mg/L	3	625.1	0.008 ☐ ML ☐ MDL
Diethyl phthalate	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Dimethyl phthalate	0.001	mg/L	0.0007	mg/L	3	625.1	0.0002 ☐ ML ☐ MDL
2,4-dinitrotoluene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
2,6-dinitrotoluene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE C. EFFLUENT PARAMETERS FOR SELECTED POTWS

Pollutant	Maximum Daily Discharge		Average Daily Discharge			Analytical Method[1]	ML or MDL (include units)
	Value	Units	Value	Units	Number of Samples		
1,2-diphenylhydrazine	0.001	mg/L	0.0007	mg/L	3	625.1	0.0002 ☐ ML ☐ MDL
Fluoranthene	0.002	mg/L	0.0045	mg/L	3	625.1	0.0005 ☐ ML ☐ MDL
Fluorene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Hexachlorobenzene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Hexachlorobutadiene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Hexachlorocyclo-pentadiene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Hexachloroethane	0.001	mg/L	0.0008	mg/L	3	625.1	0.0004 ☐ ML ☐ MDL
Indeno(1,2,3-cd)pyrene	0.005	mg/L	0.004	mg/L	3	625.1	0.001 ☐ ML ☐ MDL
Isophorone	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Naphthalene	0.003	mg/L	0.0023	mg/L	3	625.1	0.0008 ☐ ML ☐ MDL
Nitrobenzene	0.003	mg/L	0.0022	mg/L	3	625.1	0.0007 ☐ ML ☐ MDL
N-nitrosodi-n-propylamine	0.001	mg/L	0.0008	mg/L	3	625.1	0.0004 ☐ ML ☐ MDL
N-nitrosodimethylamine	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
N-nitrosodiphenylamine	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL
Phenanthrene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0002 ☐ ML ☐ MDL
Pyrene	0.003	mg/L	0.0022	mg/L	3	625.1	0.0007 ☐ ML ☐ MDL
1,2,4-trichlorobenzene	0.001	mg/L	0.0007	mg/L	3	625.1	0.0003 ☐ ML ☐ MDL

[1] Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE E. EFFLUENT MONITORING FOR WHOLE EFFLUENT TOXICITY

The table provides response space for one whole effluent toxicity sample. Copy the table to report additional test results.

SEE ATTACHMENTS

Test Information

	Test Number _____	Test Number _____	Test Number _____
Test species			
Age at initiation of test			
Outfall number			
Date sample collected			
Date test started			
Duration			
Toxicity Test Methods			
Test method number			
Manual title			
Edition number and year of publication			
Page number(s)			
Sample Type			
Check one:	☐ Grab ☐ 24-hour composite	☐ Grab ☐ 24-hour composite	☐ Grab ☐ 24-hour composite
Sample Location			
Check one:	☐ Before Disinfection ☐ After Disinfection ☐ After Dechlorination	☐ Before Disinfection ☐ After Disinfection ☐ After Dechlorination	☐ Before disinfection ☐ After disinfection ☐ After dechlorination
Point in Treatment Process			
Describe the point in the treatment process at which the sample was collected for each test.			
Toxicity Type			
Indicate for each test whether the test was performed to asses acute or chronic toxicity, or both. (Check one response.)	☐ Acute ☐ Chronic ☐ Both	☐ Acute ☐ Chronic ☐ Both	☐ Acute ☐ Chronic ☐ Both

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE E. EFFLUENT MONITORING FOR WHOLE EFFLUENT TOXICITY

The table provides response space for one whole effluent toxicity sample. Copy the table to report additional test results. SEE ATTACHMENTS

	Test Number ____	Test Number ____	Test Number ____
Test Type			
Indicate the type of test performed. (Check one response.)	☐ Static ☐ Static-renewal ☐ Flow-through	☐ Static ☐ Static-renewal ☐ Flow-through	☐ Static ☐ Static-renewal ☐ Flow-through
Source of Dilution Water			
Indicate the source of dilution water. (Check one response.)	☐ Laboratory water ☐ Receiving water	☐ Laboratory water ☐ Receiving water	☐ Laboratory water ☐ Receiving water
If laboratory water, specify type.			
If receiving water, specify source.			
Type of Dilution Water			
Indicate the type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.	☐ Fresh water ☐ Salt water (specify)	☐ Fresh water ☐ Salt water (specify)	☐ Fresh water ☐ Salt water (specify)
Percentage Effluent Used			
Specify the percentage effluent used for all concentrations in the test series.			

Parameters Tested						
Check the parameters tested.	☐ pH ☐ Salinity ☐ Temperature	☐ Ammonia ☐ Dissolved oxygen	☐ pH ☐ Salinity ☐ Temperature	☐ Ammonia ☐ Dissolved oxygen	☐ pH ☐ Salinity ☐ Temperature	☐ Ammonia ☐ Dissolved oxygen

Acute Test Results			
Percent survival in 100% effluent	%	%	%
LC_{50}			
95% confidence interval	%	%	%
Control percent survival	%	%	%

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	TN 0064611	City of Camden Sewer Treatment Facility	

Form Approved 03/05/19
OMB No. 2040-0004

TABLE E. EFFLUENT MONITORING FOR WHOLE EFFLUENT TOXICITY

The table provides response space for one whole effluent toxicity sample. Copy the table to report additional test results. SEE ATTACHMENTS

	Test Number ____		Test Number ____		Test Number ____	
Acute Test Results Continued						
Other (describe)						
Chronic Test Results						
NOEC	%		%		%	
IC_{25}	%		%		%	
Control percent survival	%		%		%	
Other (describe)						
Quality Control/Quality Assurance						
Is reference toxicant data available?	☐ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No
Was reference toxicant test within acceptable bounds?	☐ Yes	☐ No	☐ Yes	☐ No	☐ Yes	☐ No
What date was reference toxicant test run (MM/DD/YYYY)?						
Other (describe)						

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TABLE F. INDUSTRIAL DISCHARGE INFORMATION

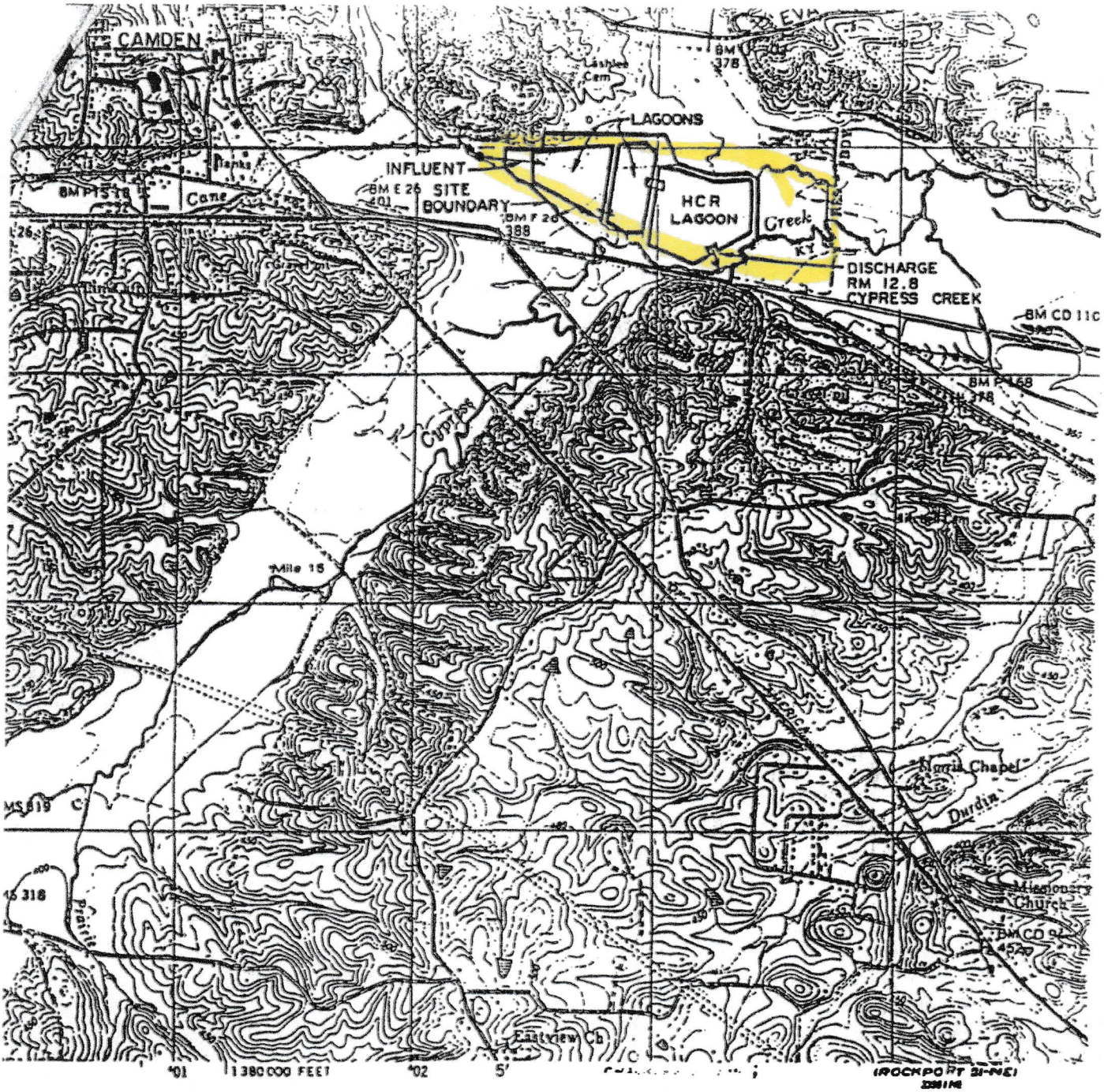
Response space is provided for three SIUs. Copy the table to report information for additional SIUs.

	SIU ___	SIU ___	SIU ___
Name of SIU			
Mailing address (street or P.O. box)			
City, state, and ZIP code			
Description of all industrial processes that affect or contribute to the discharge.			
List the principal products and raw materials that affect or contibute to the SIU's discharge.			
Indicate the average daily volume of wastewater discharged by the SIU.	gpd	gpd	gpd
How much ofthe average daily volume is attributable to process flow?	gpd	gpd	gpd
How much ofthe average daily volume is attributable to non-process flow?	gpd	gpd	gpd
Is the SIU subject to local limits?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Is the SIU subject to categorical standards?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No

TABLE F. INDUSTRIAL DISCHARGE INFORMATION

Response space is provided for three SIUs. Copy the table to report information for additional SIUs.

	SIU ____	SIU ____	SIU ____
Under what categories and subcategories is the SIU subject?			
Has the POTW experienced problems (e.g., upsets, pass-through interferences) in the past 4.5 years that are attributable to the SIU?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
If yes, describe.			



SCALE 1:24 000

1000 0 1000 2000 3000 4000

CONTOUR INTERVAL 10 FEET

DASHED LINES REPRESENT HALF INTERVAL CO

NATIONAL GEODETIC VERTICAL DATUM OF

UTM GRID AND 1984 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

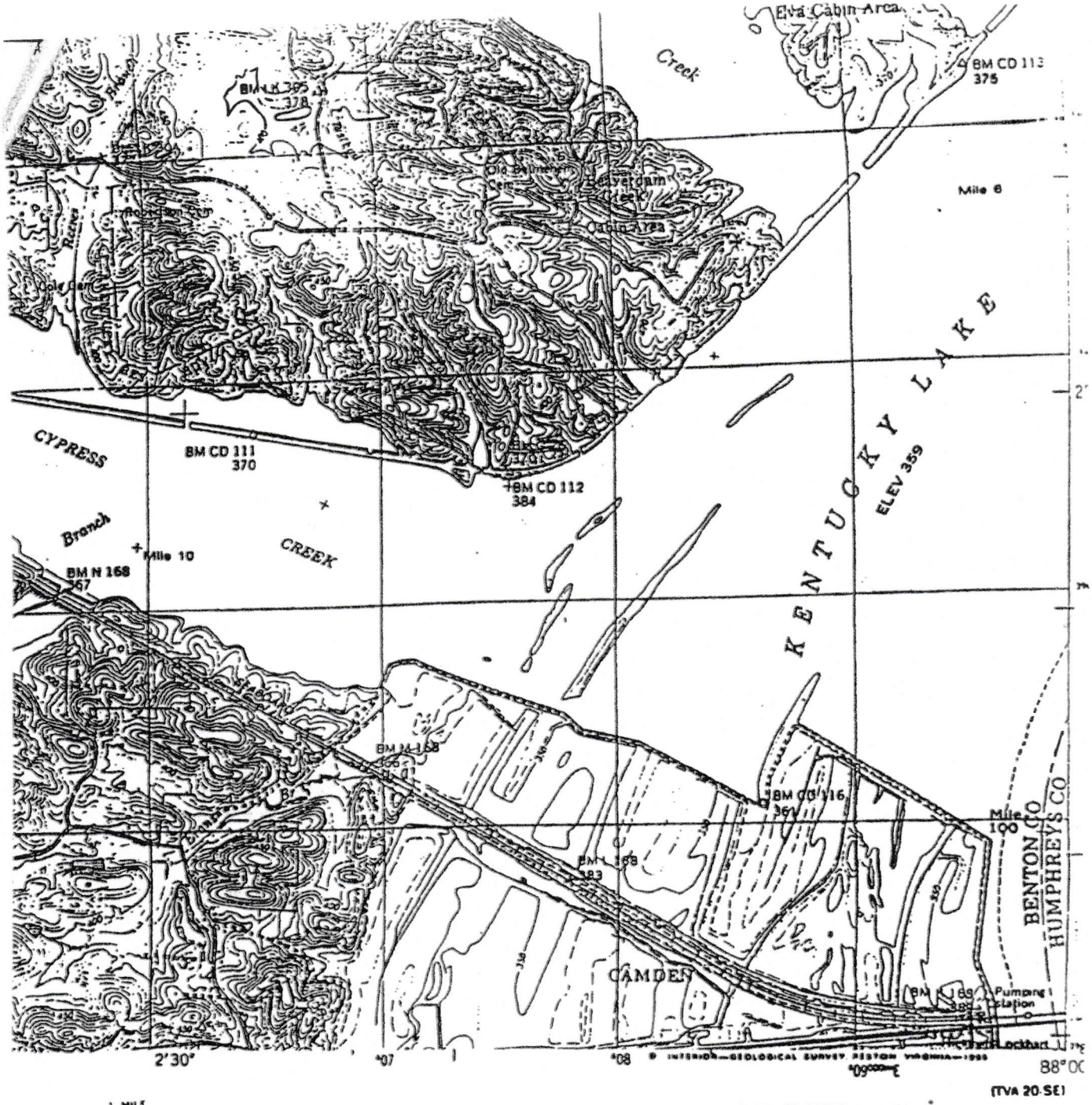
THIS MAP COMPLIES WITH NATIONAL MAP ACCURAC

FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON

TENNESSEE DEPARTMENT OF CONSERVATION, DIVISION OF GEC

AND U. S. TENNESSEE VALLEY AUTHORITY, CHATTANOOGA, TENN.

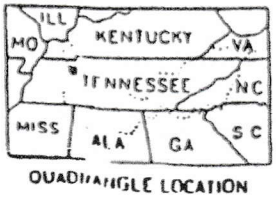
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS



1 MILE

7000 FEET

METER



QUADRANGLE LOCATION

E, TENN.

ILLE, TENN

QUEST

ROAD CLASSIFICATION

Primary highway, all weather, hard surface

Secondary highway, all weather, hard surface

Light-duty road, all weather, improved surface

Unimproved road, fair or dry weather

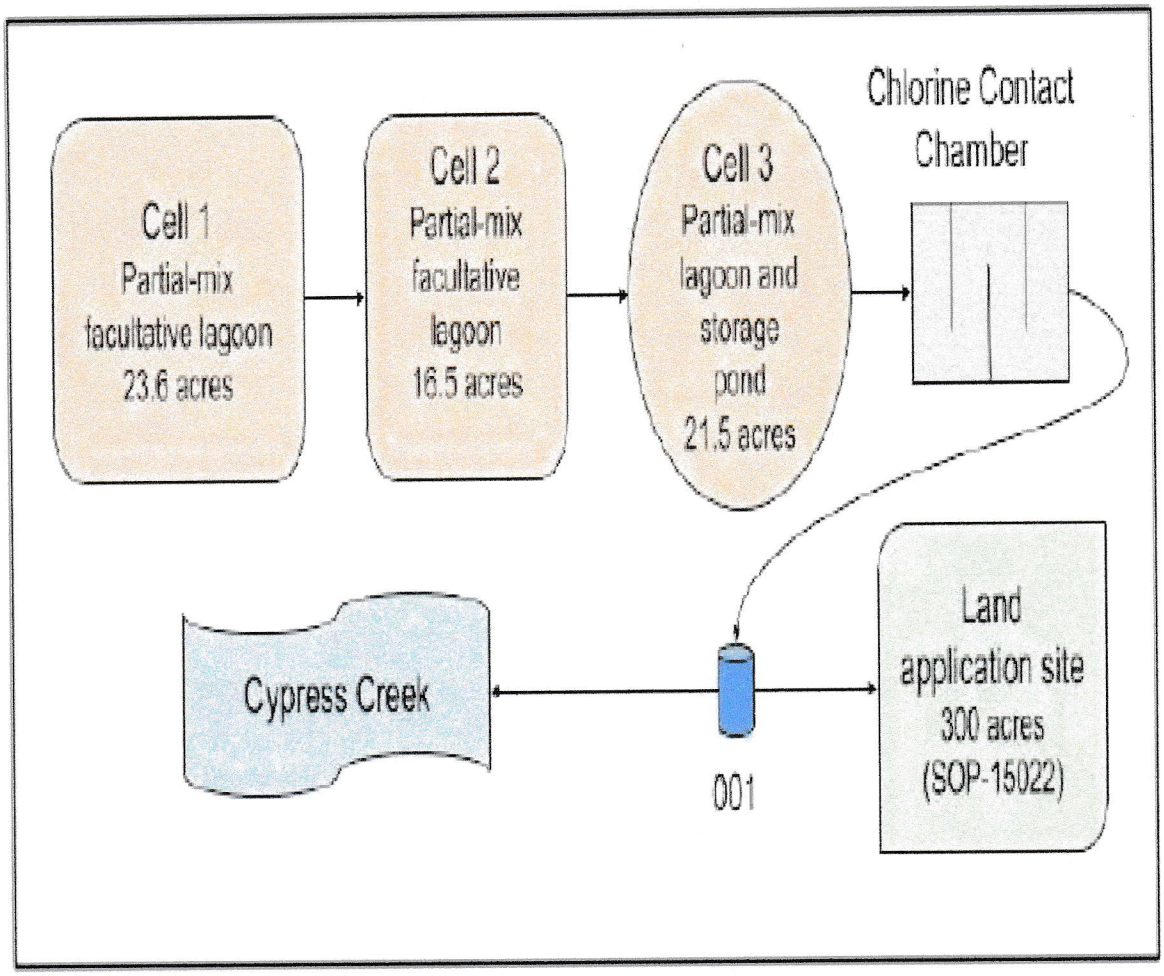
Interstate Route U. S. Route State Route

CAMDEN, TENN.

36088-A1-TF-024

1950

PHOTOREVISED 1981


Cell 1
Partial-mix
facultative lagoon
23.6 acres
Cell 2
Partial-mix
facultative
lagoon
16.5 acres
Cell 3
Partial-mix
lagoon and
storage
pond
21.5 acres
Chlorine Contact
Chamber
Land
application site
300 acres
(SOP-15022)
Cypress Creek
001

Waypoint Analytical
2269 DR. F. E. WRIGHT DRIVE
JACKSON, TN 38305

April 18, 2023

Honorable Roger Pafford
Mayor
City of Camden
P.O. Box 779
Camden, TN 38320

RE: Annual Biomonitoring 2023 – Camden WWTP – TN0064611

Dear Mr. Roger Pafford,

Please find enclosed the above referenced report for samples submitted the week of April 03, 2023.

Results of the test indicate that the samples **passed** permit requirements for Pimephales promelas and **passed** requirements for Ceriodaphnia dubia.

EPA Methods: 1002.0 Ceriodaphnia dubia Survival and Reproduction
1000.0 Pimephales promelas Larval Survival and Growth

If you have any questions, please call. We appreciate you as a client and are always glad to be of service to you.

Sincerely,

Billie Haynes
Laboratory Manager

Enclosure

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

TEST SUMMARY

Listed below is a summary of results for the "Chronic Definitive Bioassay" performed on wastewater effluent from the Camden WWTP, Outfall 001.

1. The test type was "Chronic Definitive, Static Renewal, with a 3-Brood Endpoint for the Ceriodaphnia and a "Chronic Definitive, Static Renewal, with a 7-Day Endpoint for the Pimephales.

2. Tests were conducted on 04/04/23-04/11/23 for the Ceriodaphnia and 04/04/23-04/11/23 for the Pimephales.

3. The test method used was EPA-821-R-02-013.

4. Samples were collected on 04/03/23, 04/05/23, and 04/07/23.

TABLED SUMMARY OF TEST RESULTS

Species	Results	Permit Limit	Survival IC25	Growth IC25	Reproduction IC25
Ceriodaphnia Dubia	**Pass**	9.9%	>39.6%	-----	>39.6%
Pimephales Promelas	**Pass**	9.9%	>39.6%	>39.6%	-----

Where applicable, results were calculated by Linear Interpolation.

All QC criteria required by the above referenced method were met during this analysis.

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

TABLE OF CONTENTS

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

INTRODUCTION:

Permit Number:

TN0064611

Toxicity Testing Requirements of Permit:

3-Brood Ceriodaphnia dubia Survival and Reproduction Test and a 7-Day Pimephales promelas Survival and Growth Test. The permit limit 9.9 % with an IC_{25} endpoint. Five serial dilutions and a control are required. The dilutions are as follows:

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
100% Effluent	(100+PL)/ 2	Permit Limit (PL)	0.50 X PL	0.25 X PL	Control
%effluent					
39.6	19.8	9.9	5	2.48	0

Plant Location:

Camden, Benton County, Tennessee

Name of receiving water body:

Cypress Creek at mile 12.8

Contract Laboratory:

Waypoint Analytical
2269 Dr. F. E. Wright Drive
Jackson, Tennessee 38305
731.423.5330

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

PLANT OPERATIONS:

Product(s):

Treated Domestic Wastewater

Raw Materials:

Municipal Wastewater

Operating Schedule:

24 hours per day @ 365 days per year

Description of Waste Treatment:

Schematic of Waste Treatment:

Retention Time (If Applicable):

Volume of Waste Flow:

Design Flow of Treatment Facility at Time of Sampling:

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

SOURCE OF EFFLUENT, RECEIVING WATER AND DILUTION WATER:

EFFLUENT:

Sampling Point:

Final Effluent at Outfall 001

Sample Collection Method:

24 hour Flow-proportionate composite with automatic sampler

Effluent Chemical Data:

Alkalinity Data:

Sample 1 – 66 mg/L
Sample 2 – 68 mg/L
Sample 3 – 64 mg/L

Hardness Data:

Sample 1 – 89.8 mg/L
Sample 2 – 97.3 mg/L
Sample 3 – 83.2 mg/L

Mean Daily Discharge on Sample Collection Dates:

None Given

Lapsed Time from Sample Collection to Delivery:

Sample 1 – 1.92 hrs
Sample 2 – 3.45 hrs
Sample 3 – 1.45 hrs

RECEIVING WATER:

Not Applicable

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611
DILUTION WATER:

Source:

20% Diluted Mineral Water (Perrier) Prepared by **Waypoint**

Collection Date(s) and Time(s):

Not Applicable

Pretreatment:

Temperature Equilibration and Aeration

Physical and Chemical Characteristics:

Batch ID	Date Tested	pH	Dissolved Oxygen	Specific Conductance	Alkalinity	Hardness
040123S1	04/02/23	8.09	8.05	202.9	78.0	97.5
040323S2	04/04/23	8.01	8.14	198.9	82.0	97.5
040423S3	04/05/23	8.00	8.46	207.7	92.0	102.0
040523S1	04/06/23	7.00	8.16	201.0	78.0	97.0

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611
TEST METHODS:

Toxicity Test Method Used:

"Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", Fourth Edition, EPA-821-R-02-013

Endpoint of Test:

Survival and Reproduction IC_{25} – Ceriodaphnia dubia
Survival and Growth IC_{25} – Pimephales Promelas

Deviation(s) from Reference Method:

None

Date and Time Test Started:

Ceriodaphnia – 04/04/23, 1319
Pimephales – 04/04/23, 1609

Date and Time Test Terminated:

Ceriodaphnia – 04/11/23, 1250
Pimephales – 04/11/23, 1042

Type and Volume of Test Chambers:

Ceriodaphnia – 30 ml Plastic Cups
Pimephales – 500 ml Plastic Cups

Volume of Solution per Chamber:

Ceriodaphnia – 15 ml
Pimephales – 250 ml

Number of Organisms per Chamber:

Ceriodaphnia – 1 Neonate
Pimephales – 10 Larvae

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

Number of Replicated Test Chambers per Treatment:

Ceriodaphnia – 10
Pimephales - 4

Acclimation of Test Organisms:

Ceriodaphnia – N/A Waypoint Culture
Pimephales – 5 hrs @ 25°C +/- 1°C

Test Temperature (Mean and Range):

See Attachment 1

Specify if Aeration was Needed:

None Needed

Feeding Frequency, Amount and Type of Food:

Ceriodaphnia – 0.1ml of YCT (1.8g solids/L) and 0.1ml of Selenastrum (3.0 X 10^7 cell/m) Daily.
Pimephales – 0.15g Brine Shrimp, twice per day @ 6 hr intervals

pH Control Measures (if necessary):

None Needed

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

TEST ORGANISMS:

Scientific Name:

Ceriodaphnia dubia and Pimephales promelas

Age:

Ceriodaphnia dubia - <24 hrs old all within 8 hrs of same age
Pimephales Promelas – 24-48 hrs

Life Stage:

Ceriodaphnia – Neonate
Pimephales - Larvae

Mean Length and Weight:

Ceriodaphnia – Not Applicable
Pimephales – Not Applicable

Source:

Ceriodaphnia – Waypoint Culture
Pimephales – Aquatic Biosystems, Fort Collins, Colorado

Diseases and Treatment:

Not Applicable

Taxonomic Key used for Species Identification:

Ceriodaphnia – Microscopic Examination as compared to reference material.
Pimephales – Aquatic Biosystems

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

QUALITY ASSURANCE:

Reference Toxicant used Routinely; Source:

Potassium Chloride, KCL – Fisher Scientific – Waypoint ID #: CS-433

Date and Time of Most Recent Reference Toxicant Test, Test Results, and Current Control Chart:

See Attachment 2

Dilution Water used in Reference Toxicant Test:

20% DMW – See "Dilution Water" Section

Results PMSD for Sub-lethal Endpoints Determined by Hypothesis Testing in Reference Toxicant Test:

See Table in "Results Section"

Physical and Chemical Methods used:

NPDES Approved Methods from "Standard Methods for the Examination of Water and Wastewater" Eighteenth Edition

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

RESULTS:

Tabulated Toxicity Data:

Table 1 – Survival Data for Pimephales promelas Larval Survival and Growth test

Table 2 – Weight Data Form for Pimephales promelas Larval Survival and Growth Test

Table 3 – Data for Ceriodaphnia Survival and Reproduction Test

Table 4 – Physical and Chemical Data, Chronic Toxicity

Test Endpoint Table:

Species	Results	Permit Limit	Survival IC25	Growth IC25	Reproduction IC25
Ceriodaphnia Dubia	**Pass**	9.9%	>39.6%	-----	>39.6%
Pimephales Promelas	**Pass**	9.9%	>39.6%	>39.6%	-----

Statistical Method used to Calculate Endpoints:

Ceriodaphnia Survival – ICP (Linear Interpolation)
Ceriodaphnia Reproduction – ICP (Linear Interpolation)
Pimephales Survival – ICP (Linear Interpolation)
Pimephales Growth – ICP (Linear Interpolation)

Tabulated QA Data:

See Attachment 2

PMSDs for Sub-lethal Endpoints:

Species	Endpoint	Lower PMSD Bound	Upper PMSD Bound	Result
Ceriodaphnia	Reprod.	13	47	31.698
Pimephales	Growth	12	30	28.19

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611
CONCLUSION AND RECOMMENDATIONS:

Conclusion:

Endpoints meet the permit requirements for both species.

Recommendation:

Report results to appropriate regulatory agency.

CETIS Test Evaluation Report

Report Date: 14 Apr-23 15:53 (1 of 1)
Test Code: 23-093-0017-CD | 12-3596-5073

Facility:	Camden	**Test Name:**	Ceriodaphnia 7-d Survival and Reproduction Test
Sample Site:		**Organism:**	Ceriodaphnia dubia (Water Flea)
Sample Code:	23-093-0017	**Protocol:**	EPA/821/R-02-013 (2002)
Sample Date:	03 Apr-23 08:35	**Start Date:**	04 Apr-23 13:19
Sample Age:	29h (2 °C)	**End Date:**	11 Apr-23 12:50
Project:	WET Annual Compliance Test	**Duration:**	7d **Organism Age:** <24
Permitee:	City of Camden	**Laboratory:**	Jackson TN Waypoint Analytical
Address:	397 Hildon King Rd. Camden, TN 38320	**Address:**	2269 Dr. F.E. Wright Dr. Jackson, TN 38305
Contact:	David Tuck	**Contact:**	Billie Haynes, Lab Manager
Phone:	731-584-7986	**Phone:**	731-423-5330, 731-423-5326(fax)
Email:	cityofcamden2@bellsouth.net	**Email:**	bhaynes@waypointanalytical.com

Comments:

Chronic Toxicity Evaluation

Endpoint	Criteria	Conc-%	IWC	Decision	Method
Reproduction	EC25	>39.6	9.9	Passes IWC	Linear Interpolation (ICPIN)

Test Acceptability Criteria

			TAC Limits			
Endpoint	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptibility Criteria
Reproduction	Control Resp	19.5	15	>>	Yes	Passes Acceptibility Criteria
Reproduction	Control Resp	19.5	15	>>	Yes	Passes Acceptibility Criteria

Reproduction Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	19.5	17.62	21.38	14	29	1.621	5.126	26.29%	0.0%
2.48		10	17.5	14.42	20.58	7	29	2.659	8.41	48.06%	10.26%
5		10	21	19.23	22.77	13	29	1.528	4.83	23.00%	-7.69%
9.9		10	21.9	19.67	24.13	12	31	1.923	6.082	27.77%	-12.31%
19.8		10	21.9	19.17	24.63	10	36	2.354	7.445	34.00%	-12.31%
39.6		10	21	20.07	21.93	18	25	0.8028	2.539	12.09%	-7.69%

7d Survival Rate Data Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	1	1	1	1	1	0	0	0.00%	0.0%
2.48		10	0.9	0.784	1	0	1	0.1	0.3162	35.14%	10.0%
5		10	1	1	1	1	1	0	0	0.00%	0.0%
9.9		10	1	1	1	1	1	0	0	0.00%	0.0%
19.8		10	1	1	1	1	1	0	0	0.00%	0.0%
39.6		10	1	1	1	1	1	0	0	0.00%	0.0%

Reproduction Data Summary

			Calculated Variate						
Conc-%	**Code**	**Count**	**Mean**	**Min**	**Max**	**Std Err**	**Std Dev**	**CV%**	**%Effect**
0	L	10	19.5	14	29	1.621	5.126	26.29%	0.0%
2.48		10	17.5	7	29	2.659	8.41	48.06%	10.26%
5		10	21	13	29	1.528	4.83	23.00%	-7.69%
9.9		10	21.9	12	31	1.923	6.082	27.77%	-12.31%
19.8		10	21.9	10	36	2.354	7.445	34.00%	-12.31%
39.6		10	21	18	25	0.8028	2.539	12.09%	-7.69%

CETIS Summary Report

Ceriodaphnia 7-d Survival and Reproduction Test — **Jackson TN Waypoint Analytical**

Batch ID:	10-4662-8202	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Lacey Cunningham
Start Date:	04 Apr-23 13:19	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	20% DMW
Ending Date:	11 Apr-23 12:50	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d	**Source:**	In-House Culture	**Age:**	<24
Sample ID:	16-7534-8185	**Code:**	23-093-0017	**Client:**	City of Camden
Sample Date:	03 Apr-23 08:35	**Material:**	POTW Effluent	**Project:**	WET Annual Compliance Test
Receipt Date:	03 Apr-23 08:35	**Source:**	Camden (TN0064611)		
Sample Age:	29h (2 °C)	**Station:**			

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-093-0017	04 Apr-23 08:00	05 Apr-23 08:15	06 Apr-23 12:31	2
2	23-093-0017	06 Apr-23 08:30	07 Apr-23 08:00	08 Apr-23 15:39	2

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
16-4430-8766	7d Survival Rate	Fisher Exact/Bonferroni-Holm Test	39.6	> 39.6	n/a	2.525	n/a
00-0224-3578	Reproduction	Dunnett Multiple Comparison Test	39.6	> 39.6	n/a	2.525	31.7%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU ✓
09-3853-1720	Reproduction	Linear Interpolation (ICPIN)	IC25	>39.6	n/a	n/a	<2.525

Test Acceptability

				TAC Limits			
Analysis ID	**Endpoint**	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
16-4430-8766	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Acceptibility Criteria
00-0224-3578	Reproduction	Control Resp	19.5	15	>>	Yes	Passes Acceptibility Criteria
09-3853-1720	Reproduction	Control Resp	19.5	15	>>	Yes	Passes Acceptibility Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
2.48		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
9.9		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
19.8		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
39.6		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	10	19.5	15.83	23.17	14	29	1.621	5.126	26.29%	0.00%
2.48		10	17.5	11.48	23.52	7	29	2.659	8.41	48.06%	10.26%
5		10	21	17.54	24.46	13	29	1.528	4.83	23.00%	-7.69%
9.9		10	21.9	17.55	26.25	12	31	1.923	6.082	27.77%	-12.31%
19.8		10	21.9	16.57	27.23	10	36	2.354	7.445	34.00%	-12.31%
39.6		10	21	19.18	22.82	18	25	0.8028	2.539	12.09%	-7.69%

Ceriodaphnia 7-d Survival and Reproduction Test — Jackson TN Waypoint Analytical

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2.48		1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9.9		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19.8		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39.6		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	19	15	14	15	18	15	29	21	24	25
2.48		19	28	7	11	22	9	29	23	20	7
5		16	20	24	20	13	23	29	22	26	17
9.9		12	22	20	15	24	31	16	27	25	27
19.8		10	24	19	12	22	36	27	23	26	20
39.6		25	19	25	19	21	18	19	20	21	23

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	L	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
2.48		1/1	1/1	0/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
5		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
9.9		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
19.8		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1
39.6		1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1

Ceriodaphnia 7-d Survival and Reproduction Test — **Jackson TN Waypoint Analytical**

Batch ID:	10-4662-8202	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Lacey Cunningham
Start Date:	04 Apr-23 13:19	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	20% DMW
Ending Date:	11 Apr-23 12:50	**Species:**	Ceriodaphnia dubia	**Brine:**	Not Applicable
Duration:	7d	**Source:**	In-House Culture	**Age:**	<24
Sample ID:	16-7534-8185	**Code:**	23-093-0017	**Client:**	City of Camden
Sample Date:	03 Apr-23 08:35	**Material:**	POTW Effluent	**Project:**	WET Annual Compliance Test
Receipt Date:	03 Apr-23 08:35	**Source:**	Camden (TN0064611)		
Sample Age:	29h (2 °C)	**Station:**			

Total Residual Chlorine-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	3	0	0	0	0	0	0	0		0
39.6		3	1	1	1	1	1	0	0	0.0%	0
Overall		6	0.5	-0.0748	1.075	0	1	0.2236	0.5477	109.50%	0 (0%)

Conductivity-µS/cm

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	3	203.2	192.2	214.1	198.9	207.7	2.544	4.406	2.17%	0
39.6		3	285.2	236.6	333.9	263	300	11.31	19.6	6.87%	0
Overall		6	244.2	195.2	293.2	198.9	300	19.07	46.71	19.13%	0 (0%)

Final Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	7.559	7.211	7.907	7.2	7.97	0.1422	0.3763	4.98%	0
2.48		7	7.629	7.324	7.933	7.23	8.11	0.1244	0.3292	4.32%	0
5		7	7.673	7.318	8.028	7.03	8.1	0.1452	0.3841	5.01%	0
9.9		7	7.7	7.109	8.291	6.81	8.6	0.2417	0.6395	8.31%	0
19.8		7	7.59	7.003	8.177	6.82	8.27	0.24	0.6351	8.37%	0
39.6		7	7.164	6.466	7.862	5.73	7.95	0.2852	0.7546	10.53%	0
Overall		42	7.552	7.384	7.721	5.73	8.6	0.0836	0.5418	7.17%	0 (0%)

Initial Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	8.27	8.159	8.381	8.06	8.44	0.04546	0.1203	1.45%	0
2.48		7	8.213	8.054	8.371	8.04	8.54	0.06473	0.1712	2.09%	0
5		7	8.214	8.016	8.412	8	8.65	0.08085	0.2139	2.6%	0
9.9		7	8.309	8.106	8.511	8.07	8.69	0.08273	0.2189	2.64%	0
19.8		7	8.25	8.092	8.408	8.04	8.46	0.06466	0.1711	2.07%	0
39.6		7	7.964	7.507	8.421	7.22	8.52	0.1868	0.4942	6.21%	0
Overall		42	8.203	8.119	8.287	7.22	8.69	0.04168	0.2701	3.29%	0 (0%)

Final pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	7.876	7.793	7.959	7.77	8	0.03401	0.08997	1.14%	0
2.48		7	7.879	7.792	7.965	7.77	8.02	0.03542	0.0937	1.19%	0
5		7	7.9	7.822	7.978	7.81	8.02	0.03192	0.08445	1.07%	0
9.9		7	7.897	7.809	7.985	7.79	8.03	0.03584	0.09482	1.2%	0
19.8		7	7.883	7.798	7.968	7.78	8.02	0.03483	0.09214	1.17%	0
39.6		7	7.831	7.736	7.927	7.7	8.02	0.03918	0.1037	1.32%	0
Overall		42	7.878	7.849	7.906	7.7	8.03	0.01394	0.09036	1.15%	0 (0%)

Initial pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	7.961	7.787	8.136	7.54	8.09	0.07126	0.1885	2.37%	0
2.48		7	8.047	8.009	8.086	8.01	8.13	0.01569	0.04151	0.52%	0
5		7	8.056	8.008	8.103	8.02	8.15	0.01949	0.05158	0.64%	0
9.9		7	8.057	7.997	8.117	7.98	8.16	0.02456	0.06498	0.81%	0
19.8		7	8.036	7.929	8.143	7.91	8.23	0.04369	0.1156	1.44%	0
39.6		7	7.98	7.765	8.195	7.75	8.36	0.08802	0.2329	2.92%	0
Overall		42	8.023	7.981	8.064	7.54	8.36	0.0206	0.1335	1.66%	0 (0%)

Final Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	22.64	21.75	23.53	21.5	24.1	0.3644	0.9641	4.26%	0
2.48		7	22.49	21.53	23.44	21.2	24	0.3888	1.029	4.58%	0
5		7	22.37	21.51	23.23	21.1	23.7	0.3523	0.9322	4.17%	0
9.9		7	22.19	21.49	22.88	21.1	23.1	0.2849	0.7537	3.4%	0
19.8		7	22.03	21.48	22.58	21.2	22.9	0.2254	0.5964	2.71%	0
39.6		7	21.81	21.28	22.35	21	22.8	0.2176	0.5757	2.64%	0
Overall		42	22.25	22	22.51	21	24.1	0.1274	0.8256	3.71%	0 (0%)

Initial Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	22.61	21.99	23.24	22	24	0.2539	0.6719	2.97%	0
2.48		7	22.61	22.1	23.13	22.1	23.8	0.2109	0.558	2.47%	0
5		7	22.6	22.02	23.18	22	23.8	0.239	0.6325	2.8%	0
9.9		7	22.84	22.21	23.47	22	23.8	0.2581	0.6828	2.99%	0
19.8		7	23.17	22.56	23.79	22.3	24.2	0.2514	0.6651	2.87%	0
39.6		7	23.77	23.14	24.4	23	25	0.2579	0.6824	2.87%	0
Overall		42	22.94	22.7	23.17	22	25	0.1151	0.7457	3.25%	0 (0%)

Ceriodaphnia 7-d Survival and Reproduction Test **Jackson TN Waypoint Analytical**

Total Residual Chlorine-mg/L

Conc-%	Code	1	2	3
0	L	0	0	0
2.48				
5				
9.9				
19.8				
39.6		1	1	1

Conductivity-µS/cm

Conc-%	Code	1	2	3
0	L	202.9	198.9	207.7
2.48				
5				
9.9				
19.8				
39.6		300	292.7	263

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.25	7.22	7.2	7.95	7.37	7.97	7.95
2.48		7.23	7.26	7.66	8.11	7.55	7.62	7.97
5		7.03	7.36	7.79	7.84	8.04	7.55	8.1
9.9		6.81	7.02	7.7	7.85	8.3	7.62	8.6
19.8		6.82	6.83	7.32	8.21	8.16	7.52	8.27
39.6		7.32	6.67	7.4	7.8	7.95	7.28	5.73

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.44	8.37	8.24	8.27	8.06	8.22	8.29
2.48		8.04	8.04	8.3	8.19	8.19	8.19	8.54
5		8.17	8	8.18	8.16	8.29	8.05	8.65
9.9		8.18	8.12	8.39	8.25	8.46	8.07	8.69
19.8		8.15	8.07	8.46	8.26	8.45	8.04	8.32
39.6		7.4	7.22	8.05	8.38	8.52	8.28	7.9

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.87	7.79	7.77	7.82	7.98	7.9	8
2.48		7.87	7.77	7.78	7.85	7.98	7.88	8.02
5		7.86	7.81	7.81	7.94	7.99	7.87	8.02
9.9		7.83	7.79	7.81	7.94	8	7.88	8.03
19.8		7.82	7.79	7.78	7.92	7.97	7.88	8.02
39.6		7.81	7.7	7.77	7.84	7.9	7.78	8.02

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.03	8.05	8.09	7.54	8.01	7.99	8.02
2.48		8.02	8.06	8.13	8.06	8.02	8.01	8.03
5		8.02	8.06	8.15	8.1	8.02	8.02	8.02
9.9		8.02	8.06	8.16	8.13	8.02	8.03	7.98
19.8		7.96	8.02	8.23	8.16	7.98	7.99	7.91
39.6		7.86	7.83	8.36	8.26	7.9	7.9	7.75

Ceriodaphnia 7-d Survival and Reproduction Test — Jackson TN Waypoint Analytical

Final Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	21.7	22.5	22.3	23.7	24.1	21.5	22.7
2.48		21.7	22.1	22.1	23.7	24	21.2	22.6
5		21.5	22.2	22.1	23.3	23.7	21.1	22.7
9.9		21.6	22	21.9	23.1	23.1	21.1	22.5
19.8		21.5	22	21.8	22.6	22.9	21.2	22.2
39.6		21.3	21.9	21.7	22	22.8	21	22

Initial Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	22.3	24	22.5	22	22.1	22.6	22.8
2.48		22.6	23.8	22.5	22.2	22.1	22.6	22.5
5		22.6	23.8	22.8	22.2	22	22.8	22
9.9		23.4	23.8	23.2	22.2	22.3	23	22
19.8		23.5	24.2	23.7	22.7	22.7	23.1	22.3
39.6		24.1	23.9	25	23	23.2	23.9	23.3

CETIS Test Evaluation Report

Test Code: 23-093-0017-PP | 15-6876-0886

Facility:	Camden	**Test Name:**	Fathead Minnow 7-d Larval Survival and Growth Test
Sample Site:		**Organism:**	Pimephales promelas (Fathead Minnow)
Sample Code:	23-093-0017	**Protocol:**	EPA/821/R-02-013 (2002)
Sample Date:	03 Apr-23 08:35	**Start Date:**	04 Apr-23 16:09
Sample Age:	32h (2 °C)	**End Date:**	11 Apr-23 10:42
Project:	WET Annual Compliance Test	**Duration:**	6d 19h **Organism Age:** <24

Permitee:	City of Camden	**Laboratory:**	Jackson TN Waypoint Analytical
Address:	397 Hildon King Rd. Camden, TN 38320	**Address:**	2269 Dr. F.E. Wright Dr. Jackson, TN 38305
Contact:	David Tuck	**Contact:**	Billie Haynes, Lab Manager
Phone:	731-584-7986	**Phone:**	731-423-5330, 731-423-5326(fax)
Email:	cityofcamden2@bellsouth.net	**Email:**	bhaynes@waypointanalytical.com

Comments:

Chronic Toxicity Evaluation

Endpoint	Criteria	Conc-%	IWC	Decision	Method
Mean Dry Weight-mg	EC25	>39.6	9.9	Passes IWC	Linear Interpolation (ICPIN)

Test Acceptability Criteria

			TAC Limits			
Endpoint	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
7d Survival Rate	Control Resp	0.95	0.8	>>	Yes	Passes Acceptibility Criteria
Mean Dry Weight-mg	Control Resp	0.3265	0.25	>>	Yes	Passes Acceptibility Criteria
Mean Dry Weight-mg	Control Resp	0.3265	0.25	>>	Yes	Passes Acceptibility Criteria

CETIS Summary Report

Fathead Minnow 7-d Larval Survival and Growth Test — **Jackson TN Waypoint Analytical**

Batch ID:	13-8445-0472	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Lacey Cunningham
Start Date:	04 Apr-23 16:09	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	20% DMW
Ending Date:	11 Apr-23 10:42	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	6d 19h	**Source:**	Aquatic Biosystems, CO	**Age:**	<24
Sample ID:	16-7534-8185	**Code:**	23-093-0017	**Client:**	City of Camden
Sample Date:	03 Apr-23 08:35	**Material:**	POTW Effluent	**Project:**	WET Annual Compliance Test
Receipt Date:	03 Apr-23 08:35	**Source:**	Camden (TN0064611)		
Sample Age:	32h (2 °C)	**Station:**			

Sample Renewals

Renewal	Sample Code	Sample Date	Receive Date	Renewal Date	Temp °C
1	23-093-0017	04 Apr-23 08:00	05 Apr-23 08:15	06 Apr-23 13:41	2
2	23-093-0017	06 Apr-23 08:30	07 Apr-23 08:00	08 Apr-23 19:32	2

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	NOEL	LOEL	TOEL	TU	PMSD ✓
16-8548-3038	7d Survival Rate	Steel Many-One Rank Sum Test	39.6	> 39.6	n/a	2.525	12.9%
13-3016-2799	Mean Dry Weight-mg	Dunnett Multiple Comparison Test	39.6	> 39.6	n/a	2.525	28.2%

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	Level	%	95% LCL	95% UCL	TU ✓
01-4372-7086	Mean Dry Weight-mg	Linear Interpolation (ICPIN)	IC25	>39.6	n/a	n/a	<2.525

Test Acceptability

				TAC Limits			
Analysis ID	**Endpoint**	**Attribute**	**Test Stat**	**Lower**	**Upper**	**Overlap**	**Decision**
16-8548-3038	7d Survival Rate	Control Resp	0.95	0.8	>>	Yes	Passes Acceptibility Criteria
01-4372-7086	Mean Dry Weight-mg	Control Resp	0.3265	0.25	>>	Yes	Passes Acceptibility Criteria
13-3016-2799	Mean Dry Weight-mg	Control Resp	0.3265	0.25	>>	Yes	Passes Acceptibility Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	4	0.9500	0.7909	1.0000	0.8000	1.0000	0.0500	0.1000	10.53%	0.00%
2.48		4	0.9750	0.8954	1.0000	0.9000	1.0000	0.0250	0.0500	5.13%	-2.63%
5		4	0.9500	0.8581	1.0000	0.9000	1.0000	0.0289	0.0577	6.08%	0.00%
9.9		4	0.9750	0.8954	1.0000	0.9000	1.0000	0.0250	0.0500	5.13%	-2.63%
19.8		4	0.9500	0.7909	1.0000	0.8000	1.0000	0.0500	0.1000	10.53%	0.00%
39.6		4	0.9500	0.8581	1.0000	0.9000	1.0000	0.0289	0.0577	6.08%	0.00%

Mean Dry Weight-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	L	4	0.3265	0.1996	0.4534	0.217	0.405	0.03988	0.07976	24.43%	0.00%
2.48		4	0.433	0.3958	0.4702	0.411	0.466	0.01168	0.02337	5.40%	-32.62%
5		4	0.4362	0.3839	0.4886	0.393	0.472	0.01645	0.03291	7.54%	-33.61%
9.9		4	0.4382	0.349	0.5275	0.388	0.508	0.02805	0.0561	12.80%	-34.23%
19.8		4	0.4572	0.4174	0.4971	0.431	0.49	0.01252	0.02504	5.48%	-40.05%
39.6		4	0.481	0.36	0.602	0.404	0.572	0.03802	0.07605	15.81%	-47.32%

Fathead Minnow 7-d Larval Survival and Growth Test **Jackson TN Waypoint Analytical**

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	L	1.0000	1.0000	1.0000	0.8000
2.48		1.0000	1.0000	1.0000	0.9000
5		1.0000	1.0000	0.9000	0.9000
9.9		1.0000	1.0000	0.9000	1.0000
19.8		1.0000	0.8000	1.0000	1.0000
39.6		0.9000	1.0000	1.0000	0.9000

Mean Dry Weight-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	L	0.357	0.327	0.405	0.217
2.48		0.466	0.411	0.429	0.426
5		0.472	0.446	0.393	0.434
9.9		0.508	0.388	0.398	0.459
19.8		0.49	0.447	0.461	0.431
39.6		0.435	0.572	0.513	0.404

7d Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	L	10/10	10/10	10/10	8/10
2.48		10/10	10/10	10/10	9/10
5		10/10	10/10	9/10	9/10
9.9		10/10	10/10	9/10	10/10
19.8		10/10	8/10	10/10	10/10
39.6		9/10	10/10	10/10	9/10

Fathead Minnow 7-d Larval Survival and Growth Test — **Jackson TN Waypoint Analytical**

Batch ID:	13-8445-0472	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Lacey Cunningham
Start Date:	04 Apr-23 16:09	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	20% DMW
Ending Date:	11 Apr-23 10:42	**Species:**	Pimephales promelas	**Brine:**	Not Applicable
Duration:	6d 19h	**Source:**	Aquatic Biosystems, CO	**Age:**	<24
Sample ID:	16-7534-8185	**Code:**	23-093-0017	**Client:**	City of Camden
Sample Date:	03 Apr-23 08:35	**Material:**	POTW Effluent	**Project:**	WET Annual Compliance Test
Receipt Date:	03 Apr-23 08:35	**Source:**	Camden (TN0064611)		
Sample Age:	32h (2 °C)	**Station:**			

Total Residual Chlorine-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	3	0	0	0	0	0	0	0		0
39.6		3	1	1	1	1	1	0	0	0.0%	0
Overall		6	0.5	-0.0748	1.075	0	1	0.2236	0.5477	109.50%	0 (0%)

Conductivity-µS/cm

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	3	203.2	192.2	214.1	198.9	207.7	2.544	4.406	2.17%	0
39.6		3	285.2	236.6	333.9	263	300	11.31	19.6	6.87%	0
Overall		6	244.2	195.2	293.2	198.9	300	19.07	46.71	19.13%	0 (0%)

Final Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	6.139	5.456	6.822	5.06	7.2	0.2791	0.7385	12.03%	0
2.48		7	5.9	5.505	6.295	5.51	6.75	0.1614	0.427	7.24%	0
5		7	6.04	5.738	6.342	5.59	6.41	0.1234	0.3266	5.41%	0
9.9		7	5.994	5.747	6.242	5.64	6.38	0.1011	0.2674	4.46%	0
19.8		7	6.23	5.836	6.624	5.54	6.66	0.1609	0.4257	6.83%	0
39.6		7	6.347	5.837	6.857	5.62	6.93	0.2085	0.5516	8.69%	0
Overall		42	6.108	5.96	6.257	5.06	7.2	0.07343	0.4759	7.79%	0 (0%)

Initial Dissolved Oxygen-mg/L

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	8.27	8.159	8.381	8.06	8.44	0.04546	0.1203	1.45%	0
2.48		7	8.213	8.054	8.371	8.04	8.54	0.06473	0.1712	2.09%	0
5		7	8.214	8.016	8.412	8	8.65	0.08085	0.2139	2.6%	0
9.9		7	8.309	8.106	8.511	8.07	8.69	0.08273	0.2189	2.64%	0
19.8		7	8.25	8.092	8.408	8.04	8.46	0.06466	0.1711	2.07%	0
39.6		7	7.964	7.507	8.421	7.22	8.52	0.1868	0.4942	6.21%	0
Overall		42	8.203	8.119	8.287	7.22	8.69	0.04168	0.2701	3.29%	0 (0%)

Final pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	7.433	7.264	7.602	7.24	7.7	0.0692	0.1831	2.46%	0
2.48		7	7.47	7.362	7.578	7.32	7.65	0.04408	0.1166	1.56%	0
5		7	7.503	7.437	7.569	7.42	7.61	0.02697	0.07134	0.95%	0
9.9		7	7.523	7.459	7.587	7.44	7.63	0.02607	0.06897	0.92%	0
19.8		7	7.543	7.46	7.626	7.41	7.67	0.03393	0.08976	1.19%	0
39.6		7	7.564	7.473	7.656	7.41	7.69	0.03728	0.09863	1.3%	0
Overall		42	7.506	7.471	7.541	7.24	7.7	0.01755	0.1137	1.52%	0 (0%)

Fathead Minnow 7-d Larval Survival and Growth Test **Jackson TN Waypoint Analytical**

Initial pH-Units

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	7.961	7.787	8.136	7.54	8.09	0.07126	0.1885	2.37%	0
2.48		7	8.047	8.009	8.086	8.01	8.13	0.01569	0.04151	0.52%	0
5		7	8.056	8.008	8.103	8.02	8.15	0.01949	0.05158	0.64%	0
9.9		7	8.057	7.997	8.117	7.98	8.16	0.02456	0.06498	0.81%	0
19.8		7	8.036	7.929	8.143	7.91	8.23	0.04369	0.1156	1.44%	0
39.6		7	7.98	7.765	8.195	7.75	8.36	0.08802	0.2329	2.92%	0
Overall		42	8.023	7.981	8.064	7.54	8.36	0.0206	0.1335	1.66%	0 (0%)

Final Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	23.11	22.76	23.47	22.5	23.6	0.1438	0.3805	1.65%	0
2.48		7	22.54	22.1	22.98	21.7	23.2	0.1798	0.4756	2.11%	0
5		7	22.46	22.19	22.72	22.1	22.9	0.1088	0.2878	1.28%	0
9.9		7	22.41	22.1	22.73	22	22.8	0.128	0.3388	1.51%	0
19.8		7	22.2	21.73	22.67	21.3	22.7	0.1927	0.5099	2.3%	0
39.6		7	22.03	21.59	22.46	21.1	22.5	0.1782	0.4716	2.14%	0
Overall		42	22.46	22.3	22.62	21.1	23.6	0.08044	0.5213	2.32%	0 (0%)

Initial Temperature-°C

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	QA Count
0	L	7	22.16	21.98	22.33	22	22.5	0.0719	0.1902	0.86%	0
2.48		7	22.23	22.09	22.37	22.1	22.5	0.05654	0.1496	0.67%	0
5		7	22.4	22.17	22.63	22.1	22.9	0.09512	0.2517	1.12%	0
9.9		7	22.57	22.28	22.86	22.1	23.1	0.119	0.3147	1.39%	0
19.8		7	22.7	22.33	23.07	22.1	23.3	0.1527	0.4041	1.78%	0
39.6		7	22.74	22.34	23.14	22.1	23.2	0.1631	0.4315	1.9%	0
Overall		42	22.47	22.35	22.58	22	23.3	0.05658	0.3667	1.63%	0 (0%)

Fathead Minnow 7-d Larval Survival and Growth Test — Jackson TN Waypoint Analytical

Total Residual Chlorine-mg/L

Conc-%	Code	1	2	3
0	L	0	0	0
2.48				
5				
9.9				
19.8				
39.6		1	1	1

Conductivity-µS/cm

Conc-%	Code	1	2	3
0	L	202.9	198.9	207.7
2.48				
5				
9.9				
19.8				
39.6		300	292.7	263

Final Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.2	5.85	6.21	5.73	5.06	6.97	5.95
2.48		6.75	5.57	5.82	5.64	5.51	5.92	6.09
5		6.38	5.76	6.41	5.88	5.59	6.31	5.95
9.9		6.38	5.69	5.97	6.23	5.64	6.07	5.98
19.8		6.66	6.26	6.66	6.12	5.54	6.52	5.85
39.6		6.93	6.71	6.71	5.97	5.62	6.76	5.73

Initial Dissolved Oxygen-mg/L

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.44	8.37	8.24	8.27	8.06	8.22	8.29
2.48		8.04	8.04	8.3	8.19	8.19	8.19	8.54
5		8.17	8	8.18	8.16	8.29	8.05	8.65
9.9		8.18	8.12	8.39	8.25	8.46	8.07	8.69
19.8		8.15	8.07	8.46	8.26	8.45	8.04	8.32
39.6		7.4	7.22	8.05	8.38	8.52	8.28	7.9

Final pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	7.65	7.45	7.26	7.31	7.42	7.7	7.24
2.48		7.65	7.46	7.35	7.32	7.46	7.58	7.47
5		7.61	7.52	7.44	7.42	7.46	7.58	7.49
9.9		7.63	7.53	7.51	7.44	7.45	7.59	7.51
19.8		7.67	7.54	7.61	7.45	7.41	7.58	7.54
39.6		7.69	7.57	7.66	7.47	7.41	7.59	7.56

Initial pH-Units

Conc-%	Code	1	2	3	4	5	6	7
0	L	8.03	8.05	8.09	7.54	8.01	7.99	8.02
2.48		8.02	8.06	8.13	8.06	8.02	8.01	8.03
5		8.02	8.06	8.15	8.1	8.02	8.02	8.02
9.9		8.02	8.06	8.16	8.13	8.02	8.03	7.98
19.8		7.96	8.02	8.23	8.16	7.98	7.99	7.91
39.6		7.86	7.83	8.36	8.26	7.9	7.9	7.75

Fathead Minnow 7-d Larval Survival and Growth Test — Jackson TN Waypoint Analytical

Final Temperature-°C

Conc-%	Code	1	2	3	4	5	6	7
0	L	22.5	22.9	23.4	23.6	23.1	23.4	22.9
2.48		22.3	22.8	22.8	23.2	22.6	21.7	22.4
5		22.1	22.6	22.5	22.9	22.4	22.6	22.1
9.9		22	22.7	22.5	22.8	22.1	22.7	22.1
19.8		21.3	22	22.6	22.7	22	22.7	22.1
39.6		21.1	21.9	22.5	22.1	22.1	22.5	22

Initial Temperature-°C

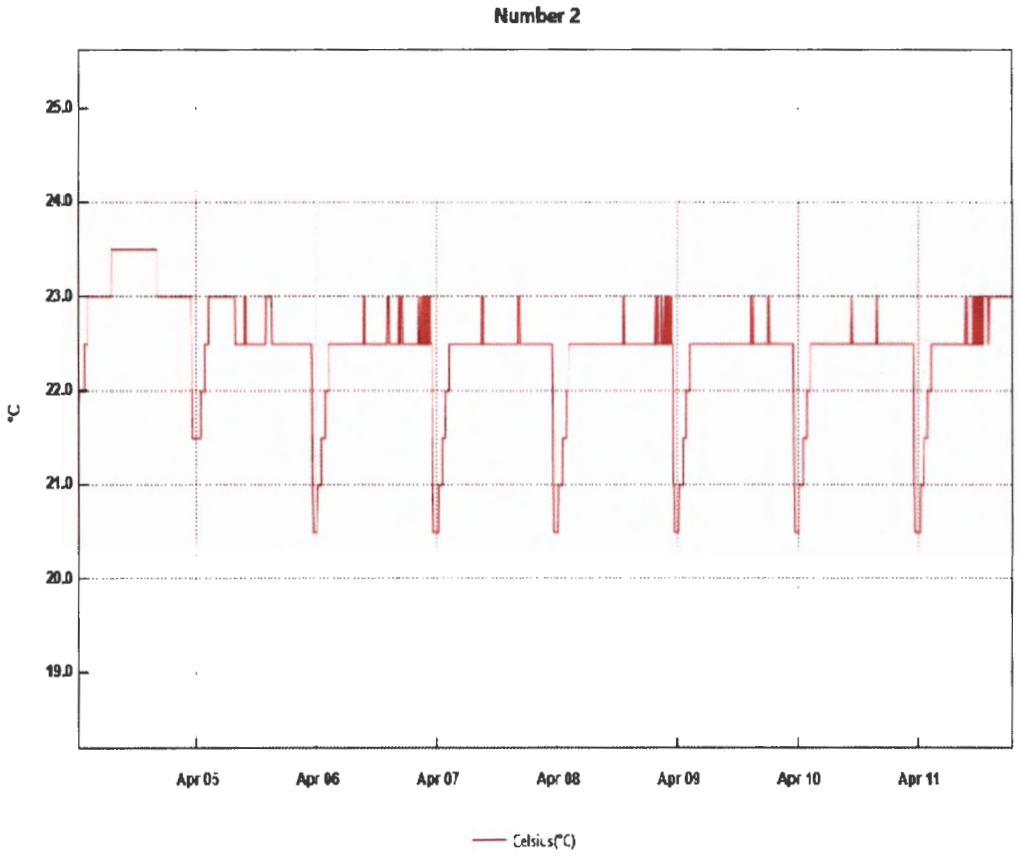
Conc-%	Code	1	2	3	4	5	6	7
0	L	22.5	22	22.1	22.2	22.3	22	22
2.48		22.3	22.5	22.1	22.1	22.3	22.2	22.1
5		22.5	22.9	22.3	22.1	22.3	22.3	22.4
9.9		22.8	23.1	22.5	22.1	22.4	22.5	22.6
19.8		23	23.3	22.5	22.1	22.4	22.7	22.9
39.6		22.8	23.1	23.2	22.1	22.2	22.8	23

Waypoint Analytical

Attachment 1

Temperature Log for Biotoxicity Testing.

Discharger:	Camden WWT	**Lab ID #:**	23-093-0017	**Test dates:**	04/04/23-04/11/23
Location:	Outfall 001	**NPDES #:**	TN0064611	**Analyst:**	LC

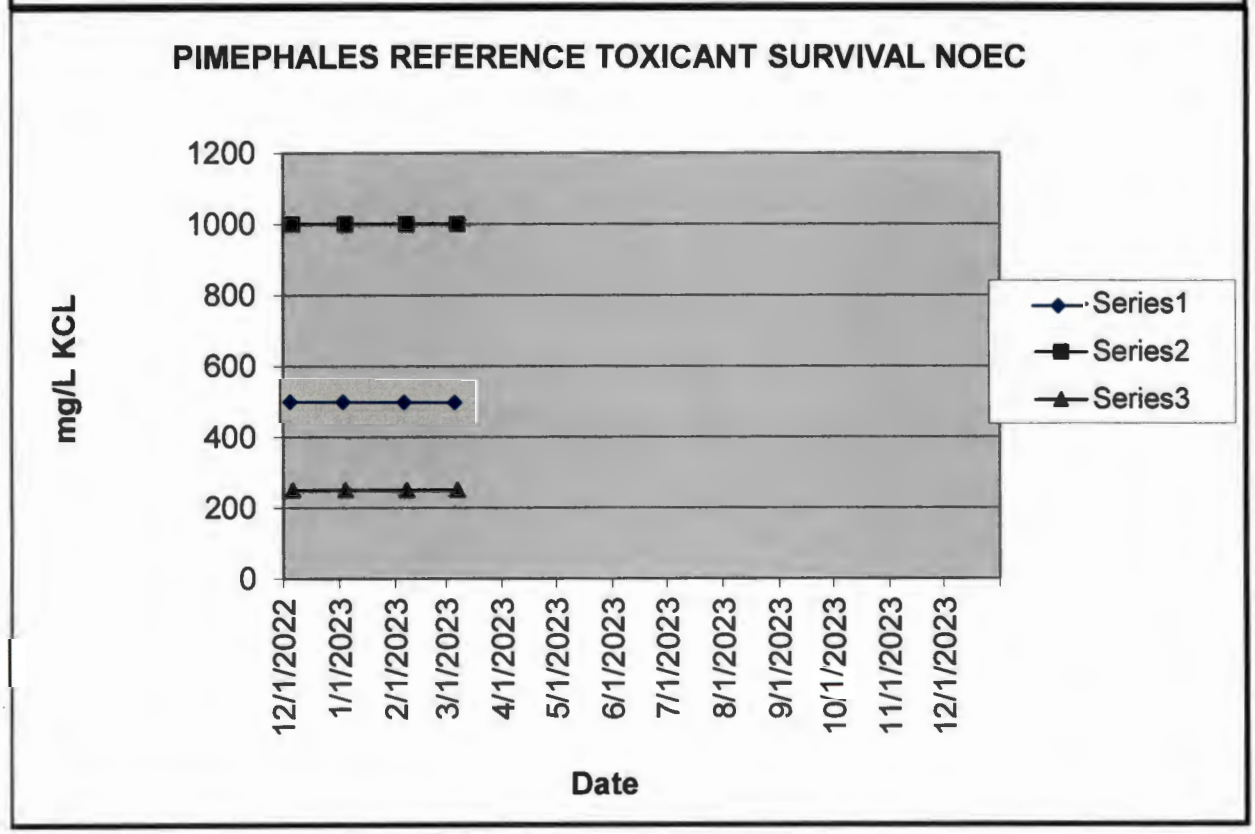


Waypoint Analytical Inc.

Attachment 2

Pimephales Chronic Reference Toxicant Data
Survival NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/06/22	500	1000	250			500.00
01/04/23	500	1000	250	0.00	0.00	500.00
02/07/23	500	1000	250	0.00	0.00	500.00
03/07/23	500	1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00

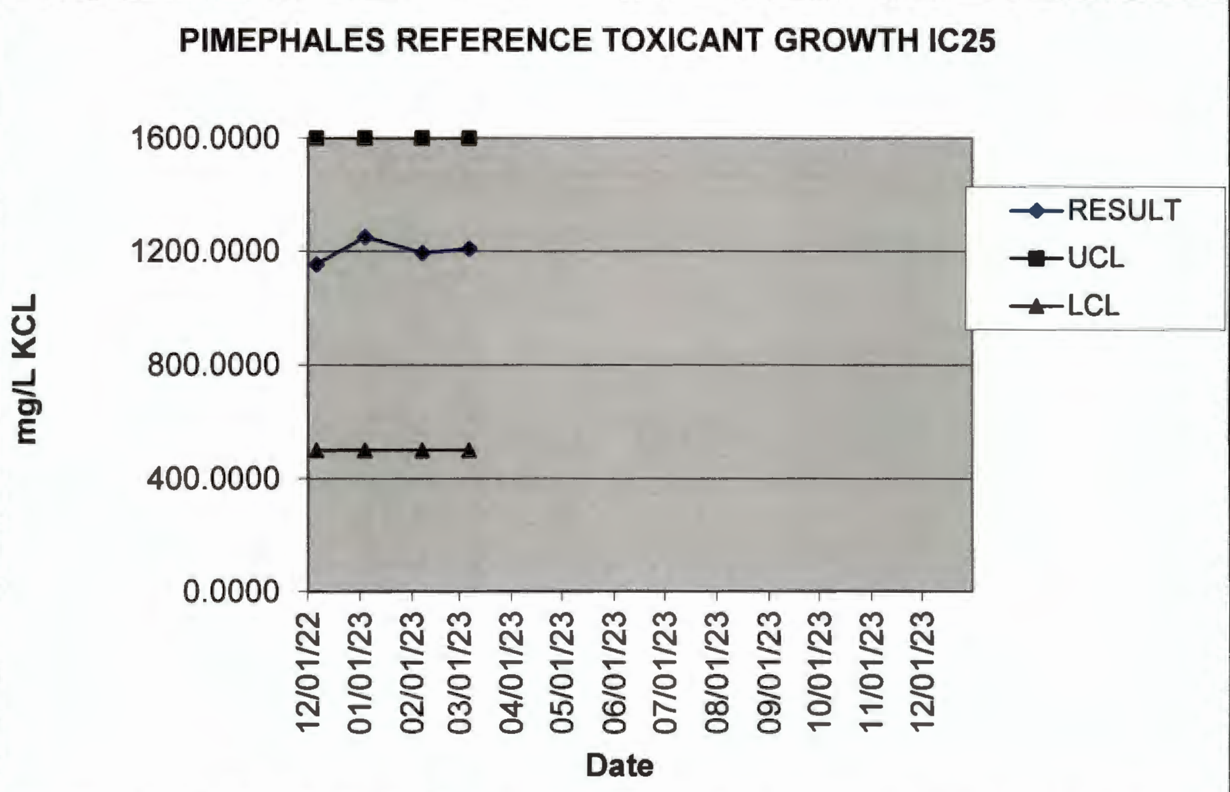


Waypoint Analytical Inc.

Attachment 2

Pimephales Chronic Reference Toxicant Data
Growth IC25

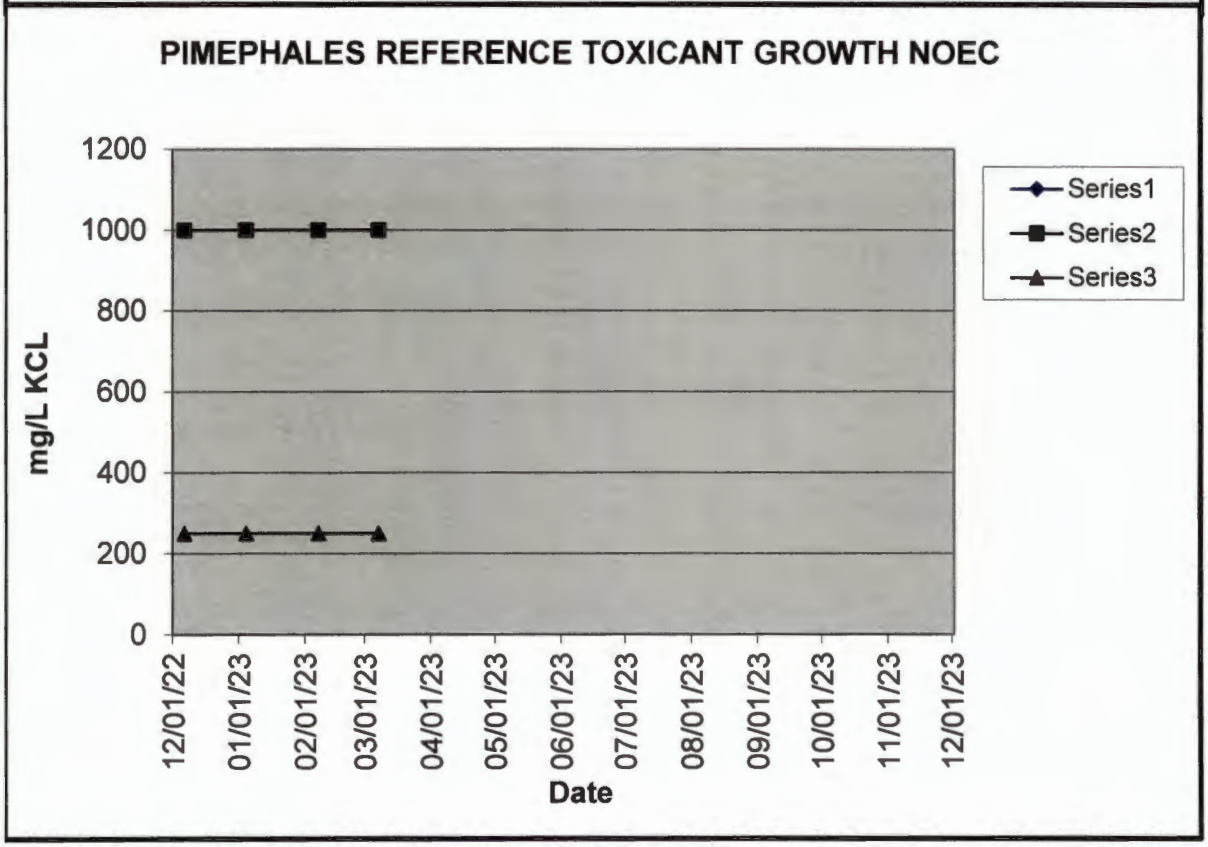
DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/06/22	1153.8600	1600.0000	500.0000		0.00	1153.86
01/04/23	1250.0000	1600.0000	500.0000	67.98	5.66	1201.93
02/07/23	1194.4800	1600.0000	500.0000	48.26	4.02	1199.45
03/07/23	1209.4300	1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94
		1600.0000	500.0000	39.72	3.30	1201.94



Waypoint Analytical Inc.
Attachment 2

Pimephales Chronic Reference Toxicant Data
Growth NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	PMSD	MEAN
12/06/22	1000	1000	250		0.00	15.06	1000.00
01/04/23	1000	1000	250	0.00	0.00	25.60	1000.00
02/07/23	1000	1000	250	0.00	0.00	22.31	1000.00
03/07/23	1000	1000	250	0.00	0.00	26.26	1000.00
		1000	250	0.00	0.00	15.48	1000.00
		1000	250	0.00	0.00	24.44	1000.00
		1000	250	0.00	0.00	25.89	1000.00
		1000	250	0.00	0.00	16.16	1000.00
		1000	250	0.00	0.00	19.30	1000.00
		1000	250	0.00	0.00	22.55	1000.00
		1000	250	0.00	0.00	18.90	1000.00
		1000	250	0.00	0.00	24.64	1000.00
		1000	250	0.00	0.00	23.31	1000.00

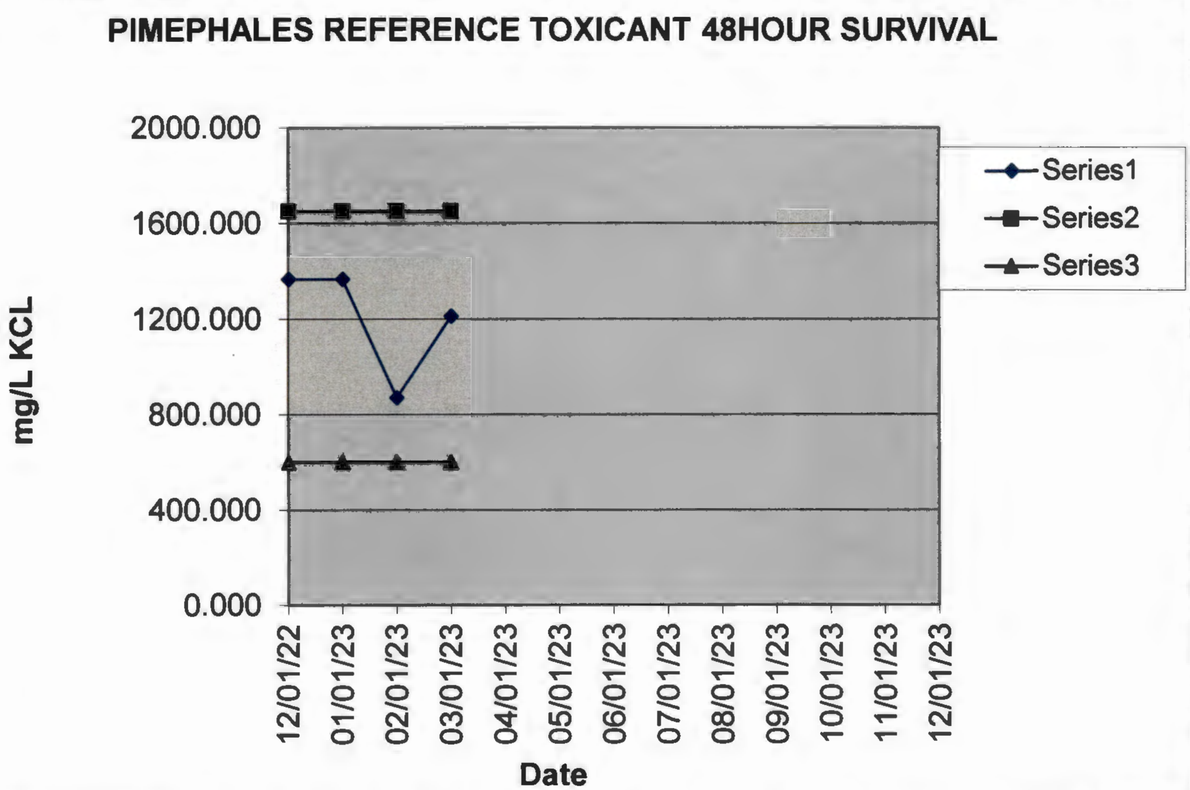


Waypoint Analytical Inc.

Attachment 2

Pimephales Chronic Reference Toxicant Data
48Hour Survival

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/07/22	1366.040	1650.00	600.00		0.00	1366.04
01/04/23	1366.040	1650.00	600.00	0.00	0.00	1366.04
02/08/23	870.550	1650.00	600.00	286.07	23.82	1200.88
03/08/23	1212.330	1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74
		1650.00	600.00	233.65	19.41	1203.74

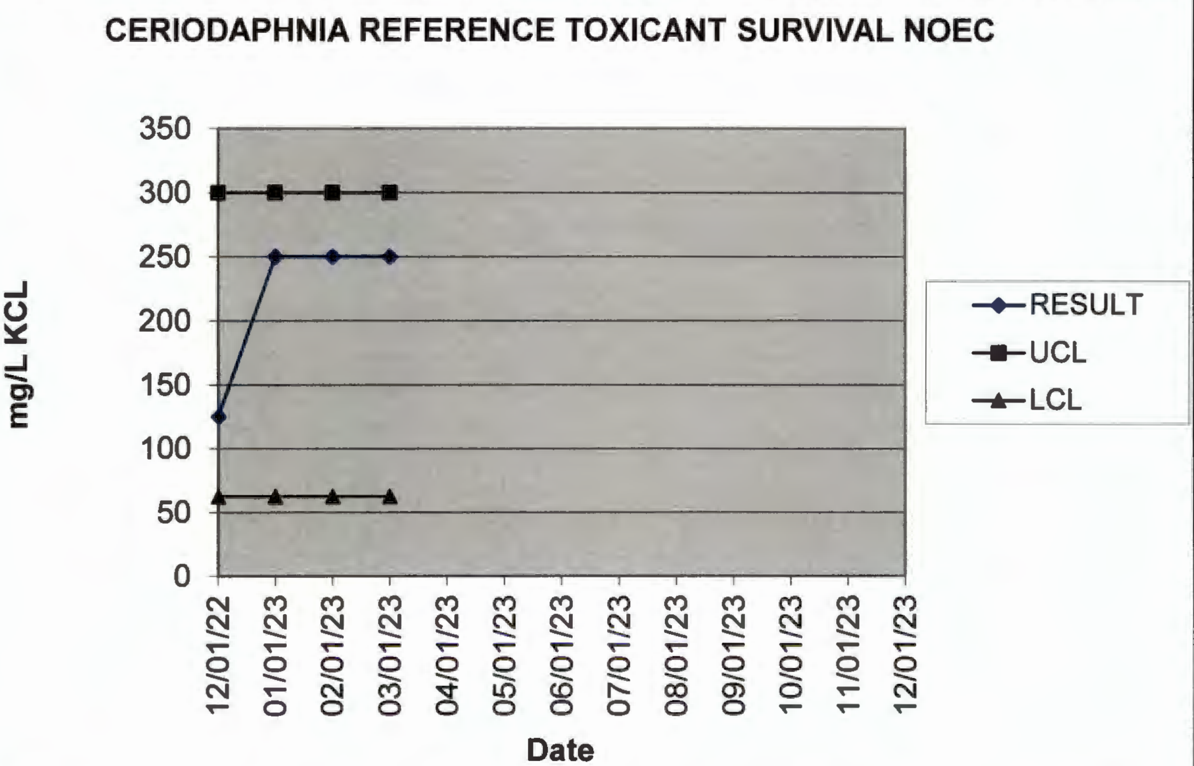


Waypoint Analytical Inc.

Attachment 2

CeriodaphniaChronic Reference Toxicant Data
Survival NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/06/22	125	300	62.5			125.00
01/03/23	250	300	62.5	88.39	47.14	187.50
02/07/23	250	300	62.5	72.17	34.64	208.33
03/07/23	250	300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75
		300	62.5	62.50	28.57	218.75

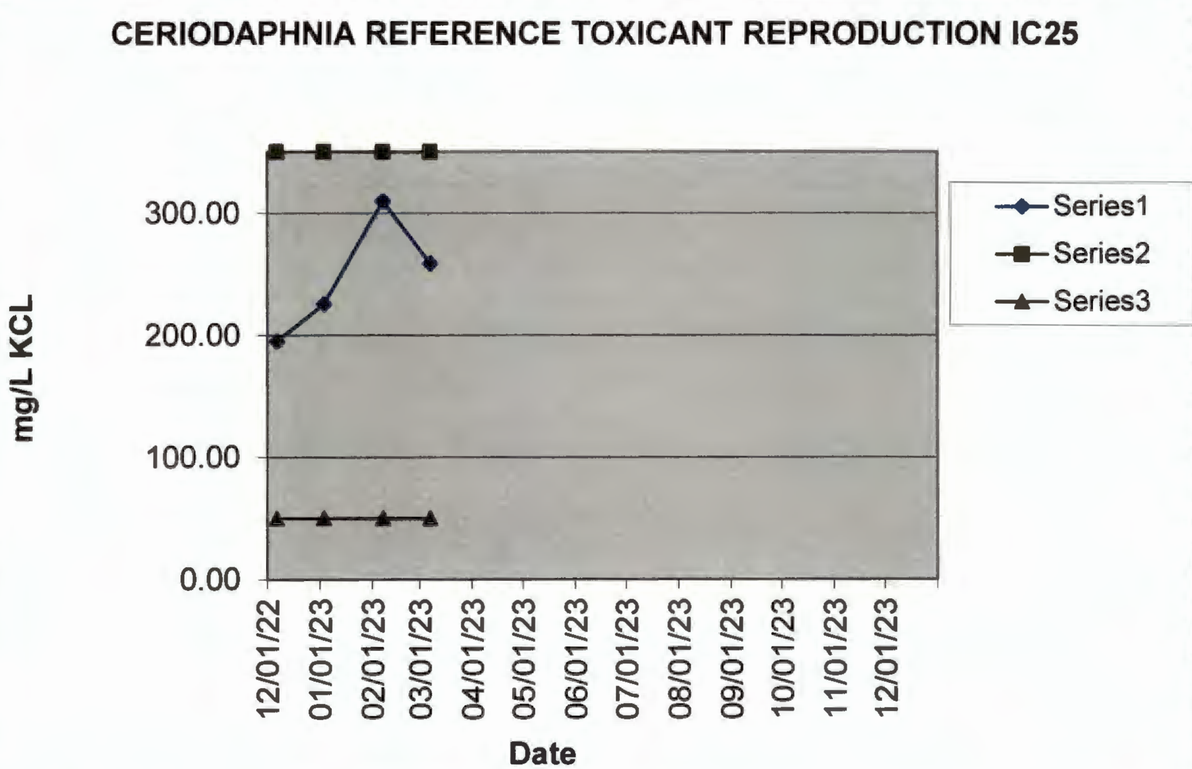


Waypoint Analytical Inc.

Attachment 2

Ceriodaphnia Chronic Reference Toxicant Data
Reproduction IC25

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/06/22	194.77	350.00	50.00	49.21	19.91	247.19
01/03/23	225.50	350.00	50.00	49.21	19.91	247.19
02/07/23	309.75	350.00	50.00	49.21	19.91	247.19
03/07/23	258.73	350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19
		350.00	50.00	49.21	19.91	247.19



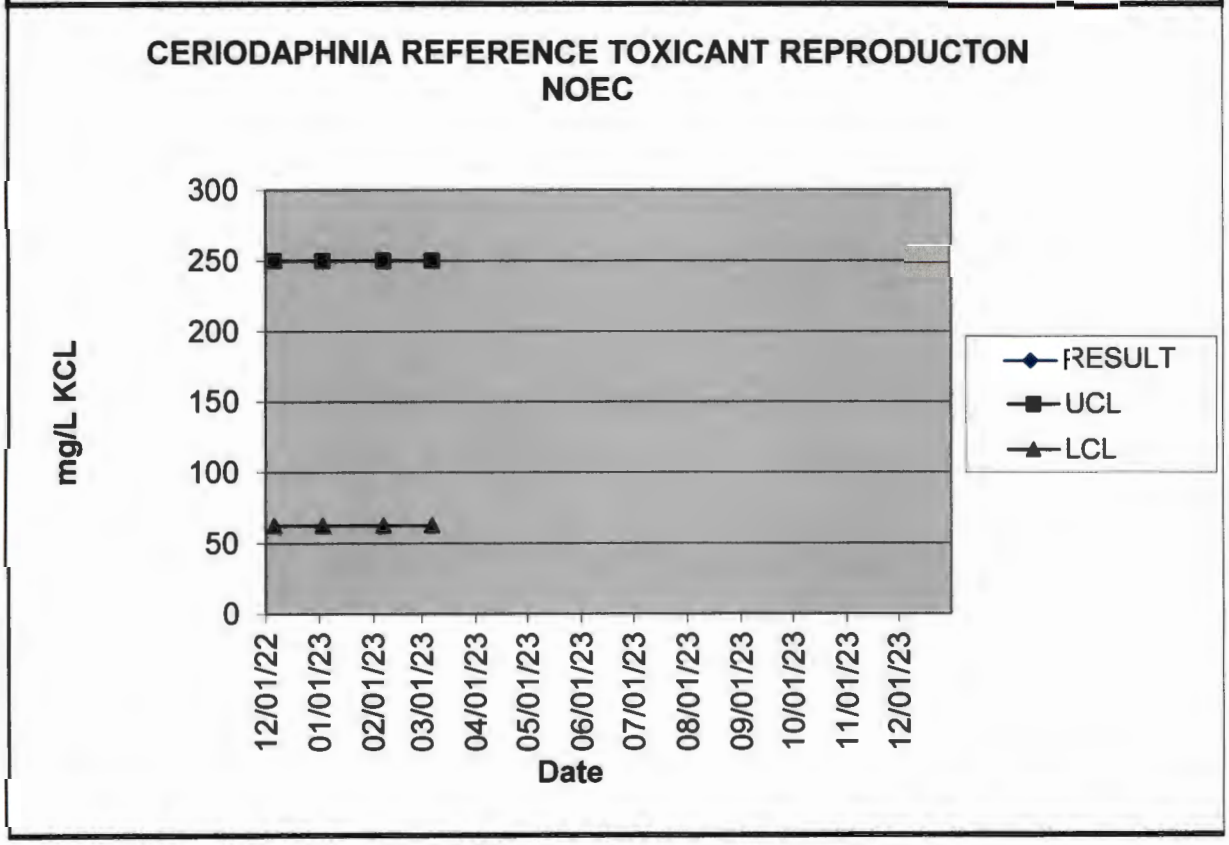
2269 Dr. F. E. Wright Drive - Jackson, Tn. 38305 - 731.423.5330ph - 731.423.5326Fax

Waypoint Analytical Inc.

Attachment 2

Ceriodaphnia Chronic Reference Toxicant Data
Reproduction NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN	PMSD
12/06/22	250	250	62.5			250.00	14.94
01/03/23	250	250	62.5	0.00	0.00	250.00	28.31
02/07/23	250	250	62.5	0.00	0.00	250.00	23.51
03/07/23	250	250	62.5	0.00	0.00	250.00	37.50
		250	62.5	0.00	0.00	250.00	31.89
		250	62.5	0.00	0.00	250.00	41.54
		250	62.5	0.00	0.00	250.00	23.83
		250	62.5	0.00	0.00	250.00	23.26
		250	62.5	0.00	0.00	250.00	30.41
		250	62.5	0.00	0.00	250.00	39.35
		250	62.5	0.00	0.00	250.00	32.19
		250	62.5	0.00	0.00	250.00	38.64
		250	62.5	0.00	0.00	250.00	38.93

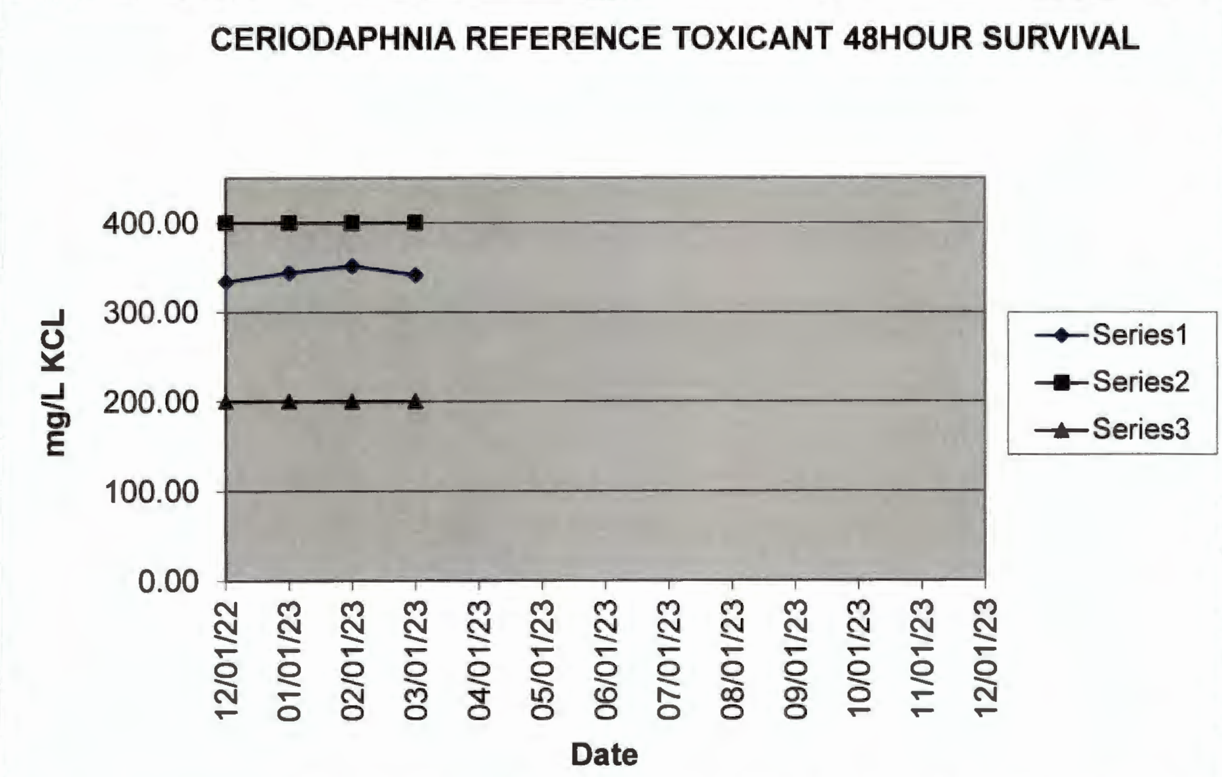


Waypoint Analytical Inc.

Attachment 2

Ceriodaphnia Chronic Reference Toxicity Data
48Hour Survival

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/07/22	334.07	400.00	200.00			334.07
01/04/23	343.75	400.00	200.00	6.84	2.02	338.91
02/08/23	351.48	400.00	200.00	8.72	2.54	343.10
03/08/23	341.51	400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70
		400.00	200.00	7.17	2.09	342.70



Waypoint Analytical

2269 Dr. F. E. Wright Dr. - Jackson, TN 38305

731-423-5330
1-800-TEC-1808
FAX 731-423-5326

PAGE 1 OF 1

CHAIN OF CUSTODY/FIELD DATA SHEET

CLIENT NAME:	City of Camden WWTP	PROJECT SITE:	Bioassay Monitoring	ANALYSES REQUESTED
ADDRESS:	397 Hildon King Rd	P.O. Required		
	Camden, TN 38320	RUSH?	(Lab MUST Be Notified)	CLIENT # 00854
PHONE:	731-584-7986 David Tuck	____ <24 hr. 200%		DATE NEEDED:
Email:	cityofcamden2@bellsouth.net	___ 24-48 hr 100%		
COLLECTED BY:	Kevin	____ 48-72 hr. 50%		FAX? __No __Yes

# OF CONT.	SAMPLE DESCRIPTION/LOCATION	Start Date/ Time	End Date/ Time	TYPE COMP	TYPE GRAB	MATRIX*	PRESERVATIVE	ANALYSES REQUESTED
2 Gal	EFFLUENT	4/0/23	835	X		WW	NONE	BIOASSAY
1	EFFLUENT	4/3/23	835	X		WW	NONE	Alk/Cl_res
1	EFFLUENT	4/3/23	835	X		WW	HN03	HARDNESS
		FLOW (GPD):						

23-093-0017
00854
04-03-2023
10:36:48
City of Camden
Camden Wate Water Plant - IC 25 Bioassay

*Matrix: SS - Soil GW - Groundwater TW - Treated Groundwater WW - Wastewater WS - Water Sample WO - Waste Oil DW - Drinking Water SL - Sludge SD - Sediment OT - Other____

Remarks:
Cl_res: _____ . _____
Conductivity: _____ . _____
DO: _____ . _____ 2,2,3
pH: _____ . _____

SHIPPED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X
OTHER		COOLER #:	

RELINQUISHED BY:	Kevin Hall	DATE: 4/3/23	TIME: 1020	RECEIVED BY:	
RELINQUISHED BY:		DATE:	TIME:	RECEIVED BY:	
RELINQUISHED BY:		DATE:	TIME:	RECEIVED FOR LAB BY:	

SAMPLES RETURNED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X

TEMP: 2°C	Bottles Received: 4		
DATE: 4/3/23	TIME: 1630	pH checked YES NO X	

Condition: (lab use only)

Waypoint Analytical

2269 Dr. F. E. Wright Dr. - Jackson, TN 38305

731-423-5330
1-800-TEC-1808
FAX 731-423-5326

PAGE 1 OF 1

CHAIN OF CUSTODY/FIELD DATA SHEET

CLIENT NAME:	City of Camden WWTP	PROJECT SITE:	Bioassay Monitoring	ANALYSES REQUESTED
ADDRESS:	397 Hildon King Rd	P.O. Required		
	Camden, TN 38320	RUSH?	(Lab MUST Be Notified)	CLIENT # 00854
PHONE:	731-584-7986 David Tuck	____ <24 hr. 200%		DATE NEEDED:
Email:	cityofcamden2@bellsouth.net	___ 24-48 hr 100%		
COLLECTED BY:	Kevin	____ 48-72 hr. 50%		FAX? __No __Yes

23-093-0017
00854
04-03-2023
10:36:48
City of Camden
Camden Wate Water Plant - IC 25 Bioassav

# OF CONT.	SAMPLE DESCRIPTION/LOCATION	Start Date/ Time	End Date/ Time	TYPE COMP	TYPE GRAB	MATRIX*	PRESERVATIVE	ANALYSES REQUESTED
2 Gal	EFFLUENT	4/4/23	4/5/23	X		WW	NONE	BIOASSAY
1	EFFLUENT	"	"	X		WW	NONE	Alk/Cl_res
1	EFFLUENT	800	815	X		WW	HN03	HARDNESS
		FLOW (GPD):						

*Matrix: SS - Soil GW - Groundwater TW - Treated Groundwater WW - Wastewater WS - Water Sample WO - Waste Oil DW - Drinking Water SL - Sludge SD - Sediment OT - Other____

Remarks:
Cl_res: _____ . _____
Conductivity: _____ . _____
DO: _____ . _____ 2,2,3
pH: _____ . _____

SHIPPED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X
OTHER		COOLER #:	

SAMPLES RETURNED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X

Condition: (lab use only)

RELINQUISHED BY:	Kevin Hall	DATE: 4/5/23	TIME: 1142	RECEIVED BY:	
RELINQUISHED BY:		DATE:	TIME:	RECEIVED BY:	TEMP: 2.0 / Bottles Received: 4
RELINQUISHED BY:		DATE:	TIME:	RECEIVED FOR LAB BY:	DATE: 4/5/23 / TIME: 1142 / pH checked YES NO X

Waypoint Analytical

2269 Dr. F. E. Wright Dr. - Jackson, TN 38305

731-423-5330
1-800-TEC-1808
FAX 731-423-5326

PAGE 1 OF 1

CHAIN OF CUSTODY/FIELD DATA SHEET

CLIENT NAME:	City of Camden WWTP	PROJECT SITE:	Bioassay Monitoring	ANALYSES REQUESTED
ADDRESS:	397 Hildon King Rd	P.O. Required		
	Camden, TN 38320	RUSH?	(Lab MUST Be Notified)	CLIENT # 00854
PHONE:	731-584-7986 David Tuck	____ <24 hr.	200%	DATE NEEDED:
Email:	cityofcamden2@bellsouth.net	___ 24-48 hr	100%	
COLLECTED BY:	Kevin	____ 48-72 hr.	50%	FAX? __No __Yes

# OF CONT.	SAMPLE DESCRIPTION/LOCATION	Start Date/ Time	End Date/ Time	TYPE COMP	TYPE GRAB	MATRIX*	PRESERVATIVE	ANALYSES REQUESTED
3 Gal	EFFLUENT	4/6/23	4/7/23	X		WW	NONE	BIOASSAY
1	EFFLUENT	11	11	X		WW	NONE	Alk/Cl_res
1	EFFLUENT	830	800	X		WW	HN03	HARDNESS
		FLOW (GPD):						

23-093-0017
00854
City of Camden
Camden Waste Water Plant - IC 25 Bioassay
04-03-2023
10:36:48

*Matrix: SS - Soil GW - Groundwater TW - Treated Groundwater WW - Wastewater WS - Water Sample WO - Waste Oil DW - Drinking Water SL - Sludge SD - Sediment OT - Other____

Remarks:
Cl_res: _____ . _____
Conductivity: _____ . _____
DO: _____ . _____ 2,2,3
pH: _____ . _____

SHIPPED VIA:			
UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X
OTHER		COOLER #:	

SAMPLES RETURNED VIA:			
UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X

Condition: (lab use only)

RELINQUISHED BY:	Kevin Hall	DATE: 4/7/23	TIME: 927	RECEIVED BY:	
RELINQUISHED BY:		DATE:	TIME:	RECEIVED BY:	TEMP: 2.0 C / Bottles Received: 5
RELINQUISHED BY:		DATE:	TIME:	RECEIVED FOR LAB BY:	DATE: 4/7/23 / TIME: 927A / pH checked YES NO X

Waypoint Analytical
2269 DR. F. E. WRIGHT DRIVE
JACKSON, TN 38305

April 20, 2022

Honorable Roger Pafford
Mayor
City of Camden
P.O. Box 779
Camden, TN 38320

RE: Annual Biomonitoring 2022 – Camden WWTP – TN0064611

Dear Mr. Roger Pafford,

Please find enclosed the above referenced report for samples submitted the week of April 04, 2022.

Results of the test indicate that the samples **passed** permit requirements for Pimephales promelas and **passed** requirements for Ceriodaphnia dubia.

EPA Methods: 1002.0 Ceriodaphnia dubia Survival and Reproduction
1000.0 Pimephales promelas Larval Survival and Growth

If you have any questions, please call. We appreciate you as a client and are always glad to be of service to you.

Sincerely,

Billie J. Haynes

Billie Haynes
Laboratory Manager

Enclosure

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

TEST SUMMARY

Listed below is a summary of results for the "Chronic Definitive Bioassay" performed on wastewater effluent from the Camden WWTP, Outfall 001.

1. The test type was "Chronic Definitive, Static Renewal, with a 3-Brood Endpoint for the Ceriodaphnia and a "Chronic Definitive, Static Renewal, with a 7-Day Endpoint for the Pimephales.

2. Tests were conducted on 04/05/22-04/12/22 for the Ceriodaphnia and 04/05/22-04/12/22 for the Pimephales.

3. The test method used was EPA-821-R-02-013.

4. Samples were collected on 04/04/22, 04/06/22, and 04/08/22.

TABLED SUMMARY OF TEST RESULTS

Species	Results	Permit Limit	Survival IC25	Growth IC25	Reproduction IC25
Ceriodaphnia Dubia	**Pass**	9.9%	>39.6%	-----	>39.6%
Pimephales Promelas	**Pass**	9.9%	>39.6%	>39.6%	-----

Where applicable, results were calculated by Linear Interpolation.

All QC criteria required by the above referenced method were met during this analysis.

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Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

TABLE OF CONTENTS

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Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

INTRODUCTION:

Permit Number:

TN0064611

Toxicity Testing Requirements of Permit:

3-Brood Ceriodaphnia dubia Survival and Reproduction Test and a 7-Day Pimephales promelas Survival and Growth Test. The permit limit 9.9 % with an IC_{25} endpoint. Five serial dilutions and a control are required. The dilutions are as follows:

Serial Dilutions for Whole Effluent Toxicity (WET) Testing					
100% Effluent	(100+PL)/ 2	Permit Limit (PL)	0.50 X PL	0.25 X PL	Control
%effluent					
39.6	19.8	9.9	5	2.48	0

Plant Location:

Camden, Benton County, Tennessee

Name of receiving water body:

Cypress Creek at mile 12.8

Contract Laboratory:

Waypoint Analytical
2269 Dr. F. E. Wright Drive
Jackson, Tennessee 38305
731.423.5330

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

PLANT OPERATIONS:

Product(s):

Treated Domestic Wastewater

Raw Materials:

Municipal Wastewater

Operating Schedule:

24 hours per day @ 365 days per year

Description of Waste Treatment:

Schematic of Waste Treatment:

Retention Time (If Applicable):

Volume of Waste Flow:

Design Flow of Treatment Facility at Time of Sampling:

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

SOURCE OF EFFLUENT, RECEIVING WATER AND DILUTION WATER:

EFFLUENT:

Sampling Point:

Final Effluent at Outfall 001

Sample Collection Method:

24 hour Flow-proportionate composite with automatic sampler

Collection Dates and Times:

Sample 1 – 04/03/22, 1200 – 04/04/22, 0830
Sample 2 – 04/05/22, 0800 – 04/06/22, 0830
Sample 3 – 04/07/22, 0800 – 04/08/22, 0800

Physical and Chemical Data:

None Requested

Mean Daily Discharge on Sample Collection Dates:

None Given

Lapsed Time from Sample Collection to Delivery:

Sample 1 – 2.00 hrs
Sample 2 – 1.50 hrs
Sample 3 – 1.83 hrs

Sample Temperature when Received at the Laboratory:

Sample 1 – 2.0°C
Sample 2 – 2.0°C
Sample 3 – 2.0°C

RECEIVING WATER:

Not Applicable

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

DILUTION WATER:

Source:

20% Diluted Mineral Water (Perrier) Prepared by **Waypoint**

Collection Date(s) and Time(s):

Not Applicable

Pretreatment:

Temperature Equilibration and Aeration

Physical and Chemical Characteristics:

Batch ID	Date Tested	pH	Dissolved Oxygen	Specific Conductance	Alkalinity	Hardness
033022S1	03/31/22	8.14	8.52	186.2	80.0	98.7
040122S2	04/02/22	8.12	8.35	188.4	94.0	101.0
040422S3	04/05/22	8.10	8.00	191.6	80.0	
040522S1	04/06/22	7.98	8.73	184.9	88.0	
040622S2	04/07/22	8.01	8.51	183.8	84.0	

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611
TEST METHODS:

Toxicity Test Method Used:

"Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms", Fourth Edition, EPA-821-R-02-013

Endpoint of Test:

Survival and Reproduction IC_{25} – Ceriodaphnia dubia
Survival and Growth IC_{25} – Pimephales Promelas

Deviation(s) from Reference Method:

None

Date and Time Test Started:

Ceriodaphnia – 04/05/22, 1210
Pimephales – 04/05/22, 1609

Date and Time Test Terminated:

Ceriodaphnia – 04/12/22, 0901
Pimephales – 04/12/22, 1105

Type and Volume of Test Chambers:

Ceriodaphnia – 30 ml Plastic Cups
Pimephales – 500 ml Plastic Cups

Volume of Solution per Chamber:

Ceriodaphnia – 15 ml
Pimephales – 250 ml

Number of Organisms per Chamber:

Ceriodaphnia – 1 Neonate
Pimephales – 10 Larvae

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

Number of Replicated Test Chambers per Treatment:

Ceriodaphnia – 10
Pimephales - 4

Acclimation of Test Organisms:

Ceriodaphnia – N/A Waypoint Culture
Pimephales – 5 hrs @ 25°C +/- 1°C

Test Temperature (Mean and Range):

See Attachment 1

Specify if Aeration was Needed:

None Needed

Feeding Frequency, Amount and Type of Food:

Ceriodaphnia – 0.1ml of YCT (1.8g solids/L) and 0.1ml of Selenastrum (3.0 X 10^7 cell/m) Daily.
Pimephales – 0.15g Brine Shrimp, twice per day @ 6 hr intervals

pH Control Measures (if necessary):

None Needed

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

TEST ORGANISMS:

Scientific Name:

Ceriodaphnia dubia and Pimephales promelas

Age:

Ceriodaphnia dubia - <24 hrs old all within 8 hrs of same age
Pimephales Promelas – 24-48 hrs

Life Stage:

Ceriodaphnia – Neonate
Pimephales - Larvae

Mean Length and Weight:

Ceriodaphnia – Not Applicable
Pimephales – Not Applicable

Source:

Ceriodaphnia – Waypoint Culture
Pimephales – Aquatic Biosystems, Fort Collins, Colorado

Diseases and Treatment:

Not Applicable

Taxonomic Key used for Species Identification:

Ceriodaphnia – Microscopic Examination as compared to reference material.
Pimephales – Aquatic Biosystems

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

QUALITY ASSURANCE:

Reference Toxicant used Routinely; Source:

Potassium Chloride, KCL – Fisher Scientific – Waypoint ID #: CS-316

Date and Time of Most Recent Reference Toxicant Test, Test Results, and Current Control Chart:

See Attachment 2

Dilution Water used in Reference Toxicant Test:

20% DMW – See "Dilution Water" Section

Results PMSD for Sub-lethal Endpoints Determined by Hypothesis Testing in Reference Toxicant Test:

See Table in "Results Section"

Physical and Chemical Methods used:

NPDES Approved Methods from "Standard Methods for the Examination of Water and Wastewater" Eighteenth Edition

Waypoint Analytical

Discharger Name: Camden WWTP
NPDES Number: TN0064611

RESULTS:

Tabulated Toxicity Data:

Table 1 – Survival Data for Pimephales promelas Larval Survival and Growth test

Table 2 – Weight Data Form for Pimephales promelas Larval Survival and Growth Test

Table 3 – Data for Ceriodaphnia Survival and Reproduction Test

Table 4 – Physical and Chemical Data, Chronic Toxicity

Test Endpoint Table:

Species	Results	Permit Limit	Survival IC25	Growth IC25	Reproduction IC25
Ceriodaphnia Dubia	**Pass**	9.9%	>39.6%	-----	>39.6%
Pimephales Promelas	**Pass**	9.9%	>39.6%	>39.6%	-----

Statistical Method used to Calculate Endpoints:

Ceriodaphnia Survival – ICP (Linear Interpolation)
Ceriodaphnia Reproduction – ICP (Linear Interpolation)
Pimephales Survival – ICP (Linear Interpolation)
Pimephales Growth – ICP (Linear Interpolation)

Tabulated QA Data:

See Attachment 2

PMSDs for Sub-lethal Endpoints:

Species	Endpoint	Lower PMSD Bound	Upper PMSD Bound	Result
Ceriodaphnia	Reprod.	13	47	32.792
Pimephales	Growth	12	30	19.721

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Discharger Name: Camden WWTP
NPDES Number: TN0064611
CONCLUSION AND RECOMMENDATIONS:

Conclusion:

Endpoints meet the permit requirements for both species.

Recommendation:

Report results to appropriate regulatory agency.

Waypoint Analytical

Table 1

Survival Data for Pimephales promelas
Larval Survival and Growth Test

Discharger: Camden WWTP
NPDES #: TN0064611
Location: Outfall 001
Dil. H2O DMW
Lab ID #: 22-094-0006
Chamber #: 2
Template #: C
Test Dates: 04/05/22-04/12/22
Analyst: LC, FP
Food ID #: 2244 BIO
Org. ID #: 2245 BIO

		No. Surviving Organisms							
Conc:	Rep. No.	1	2	3	4	5	6	7	Remarks
Control:	1	10	10	10	10	10	10	10	
	2	10	10	10	10	10	10	10	
	3	10	10	10	10	10	9	9	
	4	10	10	10	10	10	10	10	
2.48	1	10	10	10	10	10	10	10	
	2	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	10	
	4	10	10	10	10	10	10	10	
5	1	10	10	10	10	10	10	10	
	2	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	10	
	4	10	10	10	10	10	10	10	
9.9	1	10	10	10	10	10	10	10	
	2	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	10	
	4	10	10	10	10	10	10	10	
19.8	1	10	10	10	10	10	9	9	
	2	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	10	
	4	10	10	10	10	10	10	10	
39.6	1	10	10	10	10	10	10	10	
	2	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	10	
	4	10	10	10	10	10	10	10	

Day	Date/Ints.	AM Feeding	PM Feeding	Renewal Time	Remarks
Setup	04/05 - LC	1033	1610		Setup 1435
1	04/06 - LC	0741	1624	1612	
2	04/07 - LC	0751	1710	1650	
3	04/08 - LC	0735	1625	1616	
4	04/09 - LC	1023	1502	1450	
5	04/10 - LC	0851	1232	1220	
6	04/11 - LC	0857	1438	1424	
7	04/12 - LC				Finished 1105

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Table 2

Weight Data Form for *Pimephales promelas* Larval Survival and Growth Chronic Test.

Discharger: Camden WWTP **Lab ID #:** 22-094-0006 **Test dates:** 04/05/22-04/12/22 **Drying Time:** 18 HRS
Location: Outfall 001 **NPDES #:** TN0064611 **Weigh Date:** 04/13/22 **Temp. (C°):** 100
Analyst: LC, FP

Conc. %	Replicate Number	Tare Weight (g)	Total Weight (g)	Total Dry Weight of Larvae (g)	Original Number of Larvae	Mean Dry Weight of Larvae(g)	Mean Dry Weight of Larvae (mg)
Control	1	1.11712	1.12168	0.00456	10	0.000456	0.456
	2	1.11239	1.11703	0.00464	10	0.000464	0.464
	3	1.12190	1.12559	0.00369	10	0.000369	0.369
	4	1.11398	1.11791	0.00393	10	0.000393	0.393
2.48	1	1.12035	1.12481	0.00446	10	0.000446	0.446
	2	1.11317	1.11833	0.00516	10	0.000516	0.516
	3	1.12096	1.12598	0.00502	10	0.000502	0.502
	4	1.11637	1.12071	0.00434	10	0.000434	0.434
5	1	1.10848	1.11256	0.00408	10	0.000408	0.408
	2	1.12350	1.12826	0.00476	10	0.000476	0.476
	3	1.11292	1.11767	0.00475	10	0.000475	0.475
	4	1.10955	1.11366	0.00411	10	0.000411	0.411
9.9	1	1.11225	1.11625	0.00400	10	0.000400	0.400
	2	1.11073	1.11555	0.00482	10	0.000482	0.482
	3	1.11444	1.11890	0.00446	10	0.000446	0.446
	4	1.12911	1.13321	0.00410	10	0.000410	0.410
19.8	1	1.12778	1.13295	0.00517	10	0.000517	0.517
	2	1.11877	1.12294	0.00417	10	0.000417	0.417
	3	1.12820	1.13284	0.00464	10	0.000464	0.464
	4	1.12054	1.12468	0.00414	10	0.000414	0.414
39.6	1	1.12299	1.12819	0.00520	10	0.000520	0.520
	2	1.11062	1.11470	0.00408	10	0.000408	0.408
	3	1.11310	1.11737	0.00427	10	0.000427	0.427
	4	1.13223	1.13569	0.00346	10	0.000346	0.346

Conc.	Replicate Number	Tare Weight (g)	Total Weight (g)	Total Dry Weight of Larvae (g)	Surviving Number of Larvae	Mean Dry Weight of Larvae(g)	Mean Dry Weight of Larvae (mg)
Control	1	1.11712	1.12168	0.00456	10	0.000456	0.456
	2	1.11239	1.11703	0.00464	10	0.000464	0.464
	3	1.12190	1.12559	0.00369	10	0.000369	0.369
	4	1.11398	1.11791	0.00393	9	0.000437	0.437

Acceptability of Test Results			
	Minimum	Result	Units
Survival	80	97.5	%
Growth	0.25	0.43142	mg

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Table 3

Discharger: Camden WWTP
Test Dates: 04/05/22-04/12/22

DATE	04/05/22-04/12/22
EFFLUENT	EFFLUENT
DILUTION WATER	20 PERCENT PERRIER
FOOD:	.1ML YCT AND .1ML SELANASTRUM
TEMP:	RANGE
TEST ORGANISM AGE:	AGE RANGE
CUPS SIZE:	1 OZ PLASTIC
SPECIES:	C. DUBIA

CONC.	INITIAL # NEONATES
0.00%	10
2.48%	10
5.00%	10
9.90%	10
19.80%	10
39.60%	10

TEST TYPE:

CERIODAPHNIA DUBIA 3-BROOD CHRONIC (IC25 ENDPOINT)

CHRONIC TEST STATISTICAL METHOD USED:

LINEAR INTERPOLATION (ICPIN)

ENTER NUMBER OF YOUNG DIRECTLY FROM BENCH SHEET HERE

	64	65	66	67	68	69	70
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	5	7	0	9	8	7	5
5	1	0	0	1	0	0	0
6	18	20	0	16	18	16	17
7	23	21	0	3	0	1	23

	57	58	59	60	61	62	63
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	9	7	8	7	7	0	6
5	0	0	1	0	0	0	0
6	16	20	19	16	17	0	17
7	19	22	25	21	20	0	23

	50	51	52	53	54	55	56
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	6	5	0	7	5	7	1
5	0	0	0	0	0	0	0
6	17	21	0	19	10	17	17
7	21	18	0	18	20	25	23

	43	44	45	46	47	48	49
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	7	10	8	6	0	10	9
5	0	0	1	1	0	1	17
6	21	10	14	15	0	14	1
7	24	19	22	21	0	25	24

	36	37	38	39	40	41	42
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	8	7	9	6	9	7
5	0	0	0	0	0	1	21
6	0	15	19	19	8	16	1
7	0	22	20	22	12	19	23

	29	30	31	32	33	34	35
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	7	8	6	6	6	0
5	8	0	0	0	13	0	0
6	0	13	17	17	0	19	0
7	11	16	19	21	15	23	0

	22	23	24	25	26	27	28
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	7	0	6	6	8	8	8
5	0	0	0	0	14	15	14
6	17	0	16	17	1	1	18
7	21	0	19	20	18	22	0

ENTER 1 WHERE DEATH OCCURRED, DIRECTLY FROM BENCH SHEET

	64	65	66	67	68	69	70
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	57	58	59	60	61	62	63
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	50	51	52	53	54	55	56
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	43	44	45	46	47	48	49
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	36	37	38	39	40	41	42
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	29	30	31	32	33	34	35
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	22	23	24	25	26	27	28
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

Waypoint Analytical

Table 3

Discharger: Camden WWTP
Test Dates: 04/05/22-04/12/22

	15	16	17	18	19	20	21
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	9	0	5	6	6	0	0
5	0	0	0	0	0	13	13
6	16	0	16	16	17	0	1
7	25	0	21	20	20	20	26

	8	9	10	11	12	13	14
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	6	0	5	6	9	8	0
5	1	0	1	0	0	14	15
6	13	0	14	15	16	0	0
7	22	0	20	19	18	20	16

	1	2	3	4	5	6	7
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	8	8	7	6	7	0	0
5	0	0	0	0	0	0	15
6	16	16	16	17	17	0	1
7	0	0	4	26	23	0	1

	15	16	17	18	19	20	21
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	8	9	10	11	12	13	14
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

	1	2	3	4	5	6	7
0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0

Waypoint Analytical

Table 3

Discharger: Camden WWTP
Test Dates: 04/05/22-04/12/22

Deramdomized Date for Template C

	replicate		1	2	3	4	5	6	7	8	9	10	No of Young	No of Adults	Young per Adult	Cum Y per IA
Conc 1	day															
0.00%		0	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
PERCENT		1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		3	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		4	8	0	0	8	8	7	10	5	7	7	60	10	6.0	6.0
		5	0	15	13	14	0	0	1	0	0	0	43	10	4.3	10.3
		6	16	0	1	18	17	19	14	21	20	20	146	10	14.6	24.9
		7	0	16	28	0	19	20	25	18	22	21	169	10	16.9	41.8
	TOTAL		24	31	42	40	44	46	50	44	49	48	418		41.8	::::

	replicate		1	2	3	4	5	6	7	8	9	10	No of Young	No of Adults	Young per Adult	Cum Y per IA
Conc 2	day															
2.48%		0	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
PERCENT		1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		3	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		4	7	5	9	8	6	6	7	7	7	5	67	10	6.7	6.7
		5	0	1	0	15	0	0	0	0	0	0	16	10	1.6	8.3
		6	18	14	16	1	19	8	21	19	17	17	150	10	15.0	23.3
		7	4	20	25	22	23	12	24	18	20	23	191	10	19.1	42.4
	TOTAL		29	40	50	46	48	26	52	44	44	45	424		42.4	::::

	replicate		1	2	3	4	5	6	7	8	9	10	No of Young	No of Adults	Young per Adult	Cum Y per IA
Conc 3	day															
5.00%		0	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
PERCENT		1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		3	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		4	0	6	0	6	0	8	10	7	9	9	55	10	5.5	5.5
		5	15	0	13	0	8	0	0	0	0	1	37	10	3.7	9.2
		6	1	15	0	17	0	15	10	17	16	16	107	10	10.7	19.9
		7	1	19	20	20	11	22	19	25	19	3	159	10	15.9	35.8
	TOTAL		17	40	33	43	19	45	39	49	44	29	358		35.8	::::

	replicate		1	2	3	4	5	6	7	8	9	10	No of Young	No of Adults	Young per Adult	Cum Y per IA
Conc 4	day															
9.90%		0	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
PERCENT		1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		3	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		4	8	8	6	8	7	7	8	8	8	5	73	10	7.3	7.3
		5	0	14	0	14	0	21	1	0	1	1	52	10	5.2	12.5
		6	18	0	16	1	13	1	14	17	19	18	117	10	11.7	24.2
		7	0	20	20	18	16	23	22	21	25	23	188	10	18.8	43.0
	TOTAL		26	42	42	41	36	52	45	46	53	47	430		43.0	::::

	replicate		1	2	3	4	5	6	7	8	9	10	No of Young	No of Adults	Young per Adult	Cum Y per IA
Conc 5	day															
19.80%		0	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
PERCENT		1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		3	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		4	6	6	6	7	6	9	6	5	7	7	65	10	6.5	6.5
		5	0	1	0	0	0	0	1	0	0	0	2	10	0.2	6.7
		6	17	13	17	17	17	19	15	10	16	16	157	10	15.7	22.4
		7	26	22	20	21	21	22	21	20	21	1	195	10	19.5	41.9
	TOTAL		49	42	43	45	44	50	43	35	44	24	419		41.9	::::

	replicate		1	2	3	4	5	6	7	8	9	10	No of Young	No of Adults	Young per Adult	Cum Y per IA
Conc 6	day															
39.60%		0	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
PERCENT		1	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		2	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		3	0	0	0	0	0	0	0	0	0	0	0	10	0.0	0.0
		4	7	9	5	6	6	9	9	1	6	8	66	10	6.6	6.6
		5	0	0	0	0	13	1	17	0	0	0	31	10	3.1	9.7
		6	17	16	16	16	0	16	1	17	17	18	134	10	13.4	23.1
		7	23	18	21	19	15	19	24	23	23	0	185	10	18.5	41.6
	TOTAL		47	43	42	41	34	45	51	41	46	26	416		41.6	:::

Waypoint Analytical

Physical and Chemical Data
Chronic Toxicity

Table 4

Discharger: Camden WWTP
Location: Outfall 001
Test Dates: 04/05/22-04/12/22

Lab ID #: 22-094-0006
NPDES #: TN0064611
Analyst: LC, FP

Species: Pimephales promelas **Conc:** Control		**Day**							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	22.5	22.5	22.6	22.5	21.5	22.2	22.6	
	Final	22.8	23.2	22.8	22.5	22.7	22.9	22.2	
DO (mg/L)	**Initial**	7.97	7.97	7.63	8.07	7.82	8.34	8.08	
	Final	6.52	8.30	5.77	5.53	6.70	5.65	5.94	
	Initial	8.04	8.06	7.99	8.01	8.08	8.02	7.98	
	Final	7.75	7.23	7.62	7.56	7.65	7.15	7.61	
Alkalinity (mg/L as $CaCO_3$)		80.0		94.0		80.0			
Hardness (mg/L as $CaCO_3$)		98.7		101.0					
Conductivity (umhos/cm)		186.2		188.4		191.6			
Chlorine (mg/L)		<0.05		<0.05		<0.05			
Light Intensity (ft/c)		50-100							

Species: Ceriodaphnia dubia **Conc:** Control		**Day**							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	23.5	22.8	21.7	22.4	23.5	23.8	22.5	
	Final	22.9	22.6	22.8	23.5	24.0	23.9	23.2	
DO (mg/L)	**Initial**	7.97	7.97	7.63	8.07	7.82	8.34	8.08	
	Final	7.15	7.33	7.20	7.74	6.90	7.30	6.81	
pH (su)	**Initial**	8.04	8.06	7.99	8.01	8.08	8.02	7.98	
	Final	7.85	7.90	7.77	7.96	7.79	7.87	7.57	
Alkalinity (mg/L as $CaCO_3$)		80.0		94.0		80.0			
Hardness (mg/L as $CaCO_3$)		98.7		101.0					
Conductivity (umhos/cm)		186.2		188.4		191.6			
Chlorine (mg/L)		<0.05		<0.05		<0.05			
Light Intensity (ft/c)		50-100							

Waypoint Analytical

Physical and Chemical Data
Chronic Toxicity

Table 4

Discharger: Camden WWTP
Location: Outfall 001
Test Dates: 04/05/22-04/12/22

Lab ID #: 22-094-0006
NPDES #: TN0064611
Analyst: LC, FP

Species:	**Pimephales promelas**								
Conc:	**2.48%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	22.5	22.6	22.5	22.3	21.9	22.5	22.7	
	Final	22.5	22.6	22.5	22.4	22.5	22.5	21.7	
DO (mg/L)	**Initial**	8.34	8.02	8.43	8.37	8.24	8.44	8.36	
	Final	6.84	5.88	5.82	5.32	6.29	5.39	5.96	
pH (su)	**Initial**	8.06	8.07	8.08	8.04	8.09	8.04	8.00	
	Final	7.75	7.34	7.63	7.49	7.58	7.31	7.53	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Species:	**Ceriodaphnia dubia**								
Conc:	**2.48%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	23.0	22.8	21.0	22.1	23.3	23.3	22.3	
	Final	22.6	22.3	22.7	23.2	23.7	23.6	22.9	
DO (mg/L)	**Initial**	8.34	8.02	8.43	8.37	8.24	8.44	8.36	
	Final	7.16	7.75	7.62	7.87	7.28	7.68	7.08	
pH (su)	**Initial**	8.06	8.07	8.08	8.04	8.09	8.04	8.00	
	Final	7.82	7.89	7.79	7.98	7.78	7.84	7.57	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Waypoint Analytical

Physical and Chemical Data
Chronic Toxicity

Table 4

Discharger: Camden WWTP
Location: Outfall 001
Test Dates: 04/05/22-04/12/22

Lab ID #: 22-094-0006
NPDES #: TN0064611
Analyst: LC, FP

Species:	**Pimephales promelas**								
Conc:	**5.00%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C^{o})	**Initial**	22.8	22.8	22.5	22.3	22.5	22.8	22.8	
	Final	22.6	22.0	22.7	22.3	22.6	22.5	21.5	
DO (mg/L)	**Initial**	8.33	8.06	8.42	8.31	8.28	8.25	8.47	
	Final	7.03	5.98	6.30	5.75	69.92	5.54	6.23	
pH (su)	**Initial**	8.08	8.08	8.08	8.05	8.13	8.05	7.94	
	Final	7.74	7.46	7.61	7.47	7.62	7.34	7.50	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Species:	**Ceriodaphnia dubia**								
Conc:	**5.00%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C^{o})	**Initial**	23.3	23.2	21.3	22.6	23.3	23.6	22.2	
	Final	22.5	22.1	22.4	23.2	22.6	23.5	22.3	
DO (mg/L)	**Initial**	8.33	8.06	8.42	8.31	8.28	8.25	8.47	
	Final	6.82	7.92	7.64	7.98	6.94	7.50	6.66	
pH (su)	**Initial**	8.08	8.08	8.08	8.05	8.13	8.05	7.99	
	Final	7.82	7.89	7.81	7.97	7.72	7.83	7.61	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Waypoint Analytical

Physical and Chemical Data
Chronic Toxicity

Table 4

Discharger: Camden WWTP
Location: Outfall 001
Test Dates: 04/05/22-04/12/22

Lab ID #: 22-094-0006
NPDES #: TN0064611
Analyst: LC, FP

Species:	**Pimephales promelas**								
Conc:	**9.90%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	22.9	22.9	22.6	22.4	22.7	23.0	22.9	
	Final	22.4	21.9	22.5	22.1	22.3	22.4	21.5	
DO (mg/L)	**Initial**	8.11	8.21	8.42	8.30	8.17	8.25	8.51	
	Final	6.45	6.09	6.05	5.91	6.25	5.31	6.28	
pH (su)	**Initial**	8.10	8.10	8.09	8.05	8.13	8.05	8.00	
	Final	7.74	7.51	7.61	7.48	7.60	7.39	7.50	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Species:	**Ceriodaphnia dubia**								
Conc:	**9.90%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	23.4	22.8	21.5	22.6	23.3	23.6	22.1	
	Final	22.4	21.7	22.2	23.0	22.4	23.5	22.2	
DO (mg/L)	**Initial**	8.11	8.21	8.42	8.30	8.17	8.25	8.51	
	Final	7.27	7.88	7.25	7.62	6.82	7.50	6.56	
pH (su)	**Initial**	8.10	8.10	8.09	8.05	8.13	8.05	8.00	
	Final	7.81	7.86	7.80	7.97	7.69	7.84	7.62	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Waypoint Analytical

Physical and Chemical Data
Chronic Toxicity

Table 4

Discharger: Camden WWTP
Location: Outfall 001
Test Dates: 04/05/22-04/12/22

Lab ID #: 22-094-0006
NPDES #: TN0064611
Analyst: LC, FP

Species:	**Pimephales promelas**								
Conc:	**19.80%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	22.8	23.0	22.7	22.5	22.8	23.0	23.0	
	Final	22.2	21.6	22.2	21.8	22.2	22.1	21.4	
DO (mg/L)	**Initial**	7.98	8.02	8.55	8.20	8.32	8.23	8.48	
	Final	6.46	5.35	5.74	5.52	5.94	5.08	5.73	
pH (su)	**Initial**	8.15	8.10	8.10	8.05	8.12	8.07	7.98	
	Final	7.71	7.48	7.58	7.48	7.54	7.37	7.46	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Species:	**Ceriodaphnia dubia**								
Conc:	**19.80%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	23.2	22.7	21.6	22.9	23.4	22.9	22.0	
	Final	22.3	21.5	22.4	22.9	22.3	23.5	22.1	
DO (mg/L)	**Initial**	7.98	8.02	8.55	8.20	8.32	8.23	8.45	
	Final	7.11	7.88	7.64	7.49	6.38	7.44	6.48	
pH (su)	**Initial**	8.15	8.10	8.10	8.05	8.12	8.07	7.98	
	Final	7.80	7.84	7.81	7.70	7.66	7.86	7.59	
Alkalinity (mg/L as $CaCO_3$)									
Hardness (mg/L as $CaCO_3$)									
Conductivity (umhos/cm)									
Chlorine (mg/L)									
Light Intensity (ft/c)									

Waypoint Analytical

Physical and Chemical Data
Chronic Toxicity

Table 4

Discharger: Camden WWTP
Location: Outfall 001
Test Dates: 04/05/22-04/12/22

Lab ID #: 22-094-0006
NPDES #: TN0064611
Analyst: LC, FP

Species:	**Pimephales promelas**								
Conc:	**39.60%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	22.8	22.8	22.7	22.7	23.0	22.9	23.0	
	Final	22.4	21.5	22.4	21.8	22.2	22.2	21.3	
DO (mg/L)	**Initial**	7.84	8.06	8.51	8.40	8.17	8.27	7.91	
	Final	6.07	5.50	5.05	5.21	6.00	5.08	5.58	
pH (su)	**Initial**	8.22	8.09	8.10	8.05	8.14	8.08	7.98	
	Final	7.69	77.42	7.45	7.48	7.55	7.35	7.42	
Alkalinity (mg/L as $CaCO_3$)		68.0		72.0		66.0			100 % Effluent
Hardness (mg/L as $CaCO_3$)		77.5		79.0		80.9			100 % Effluent
Conductivity (umhos/cm)		233.9		237.2		234.4			100 % Effluent
Chlorine (mg/L)		0.14		0.14		0.17			100 % Effluent
Light Intensity (ft/c)		50-100							

Species:	**Ceriodaphnia dubia**								
Conc:	**39.60%**								
		Day							**Remarks**
		1	**2**	**3**	**4**	**5**	**6**	**7**	
Temp (C°)	**Initial**	23.2	22.2	23.1	22.6	23.9	23.7	22.4	
	Final	22.3	21.5	22.2	22.7	22.2	22.7	22.1	
DO (mg/L)	**Initial**	7.84	8.06	8.51	8.70	8.17	8.27	7.91	
	Final	7.14	7.48	7.33	7.72	6.60	7.60	6.77	
pH (su)	**Initial**	8.22	8.09	8.10	8.05	8.14	8.08	7.98	
	Final	7.78	7.81	7.78	7.97	7.67	7.86	7.60	
Alkalinity (mg/L as $CaCO_3$)		68.0		72.0		66.0			100 % Effluent
Hardness (mg/L as $CaCO_3$)		77.5		79.0		80.9			100 % Effluent
Conductivity (umhos/cm)		233.9		237.2		234.4			100 % Effluent
Chlorine (mg/L)		0.14		0.14		0.17			100 % Effluent
Light Intensity (ft/c)		50-100							

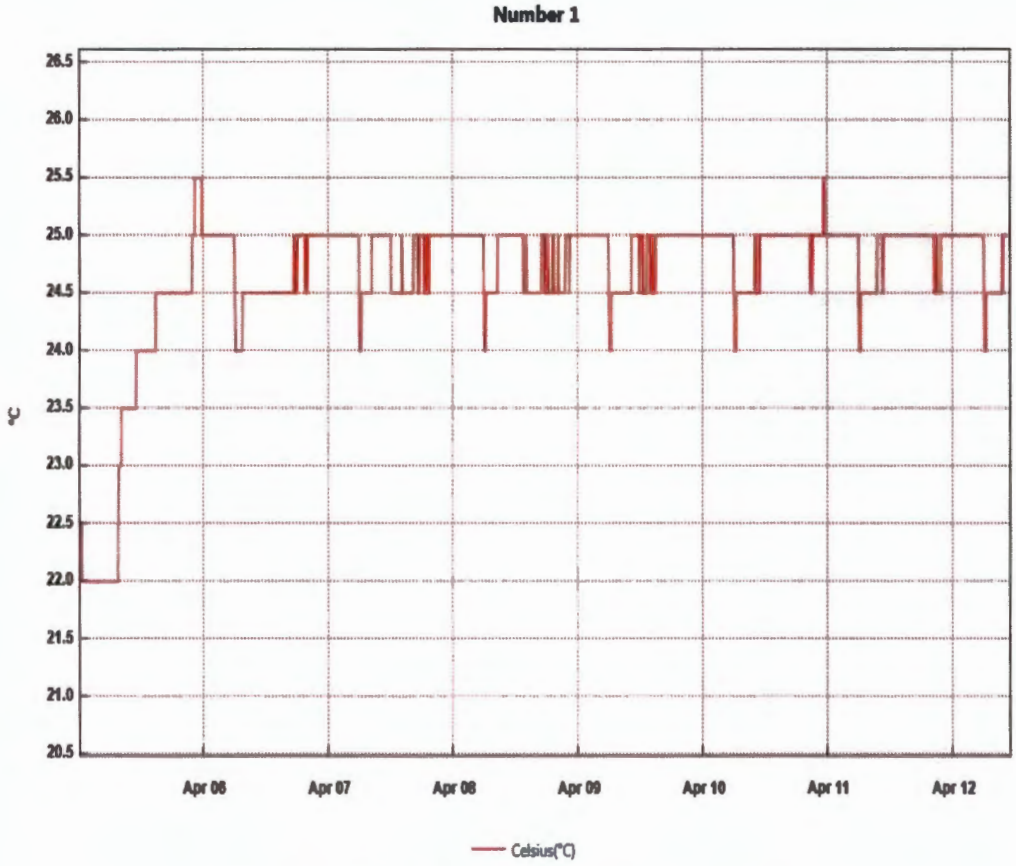
*ND=None Detected

Waypoint Analytical

Attachment 1

Temperature Log for Biotoxicity Testing.

Discharger:	Camden WWT	**Lab ID #:**	22-094-0006	**Test dates:**	04/05/22-04/12/22
Location:	Outfall 001	**NPDES #:**	TN0064611	**Analyst:**	LC, FP

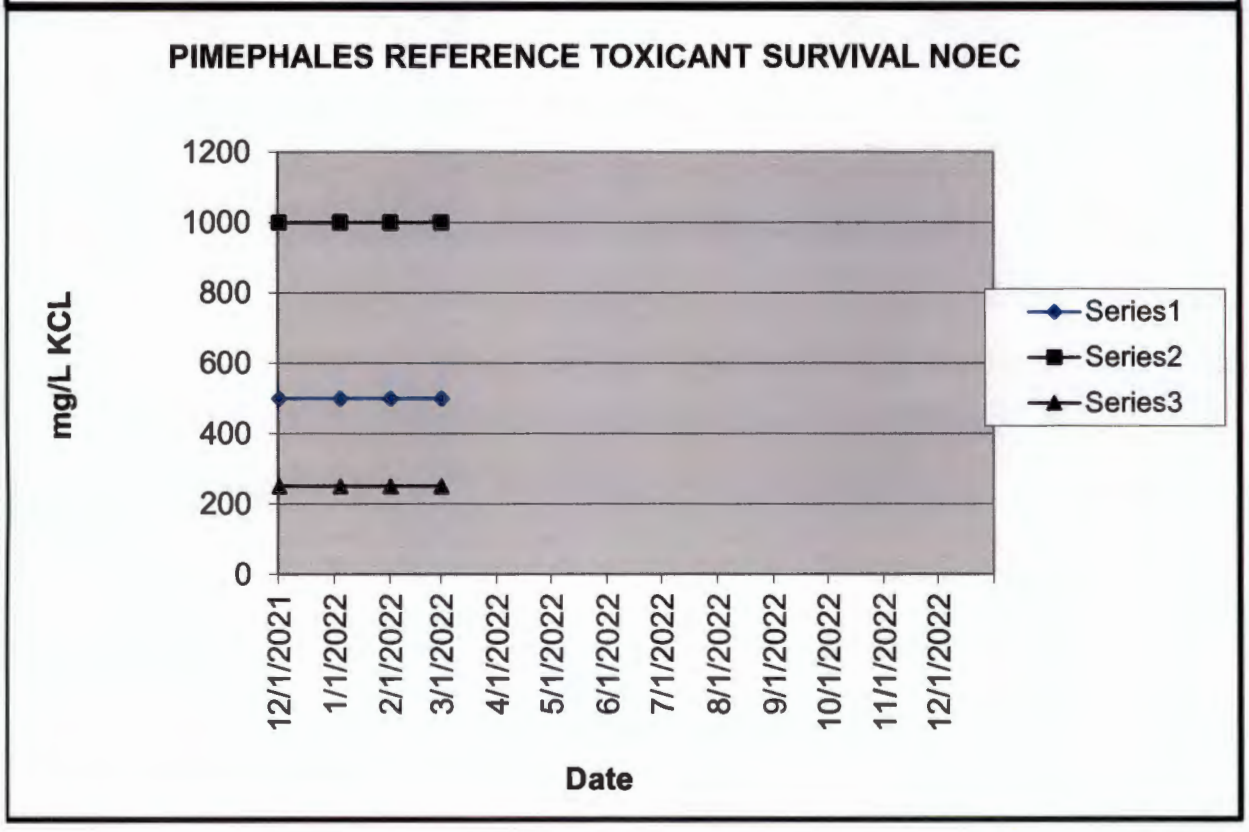


Waypoint Analytical Inc.

Attachment 2

Pimephales Chronic Reference Toxicant Data
Survival NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/01/21	500	1000	250			500.00
01/04/22	500	1000	250	0.00	0.00	500.00
02/01/22	500	1000	250	0.00	0.00	500.00
03/01/22	500	1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00
		1000	250	0.00	0.00	500.00



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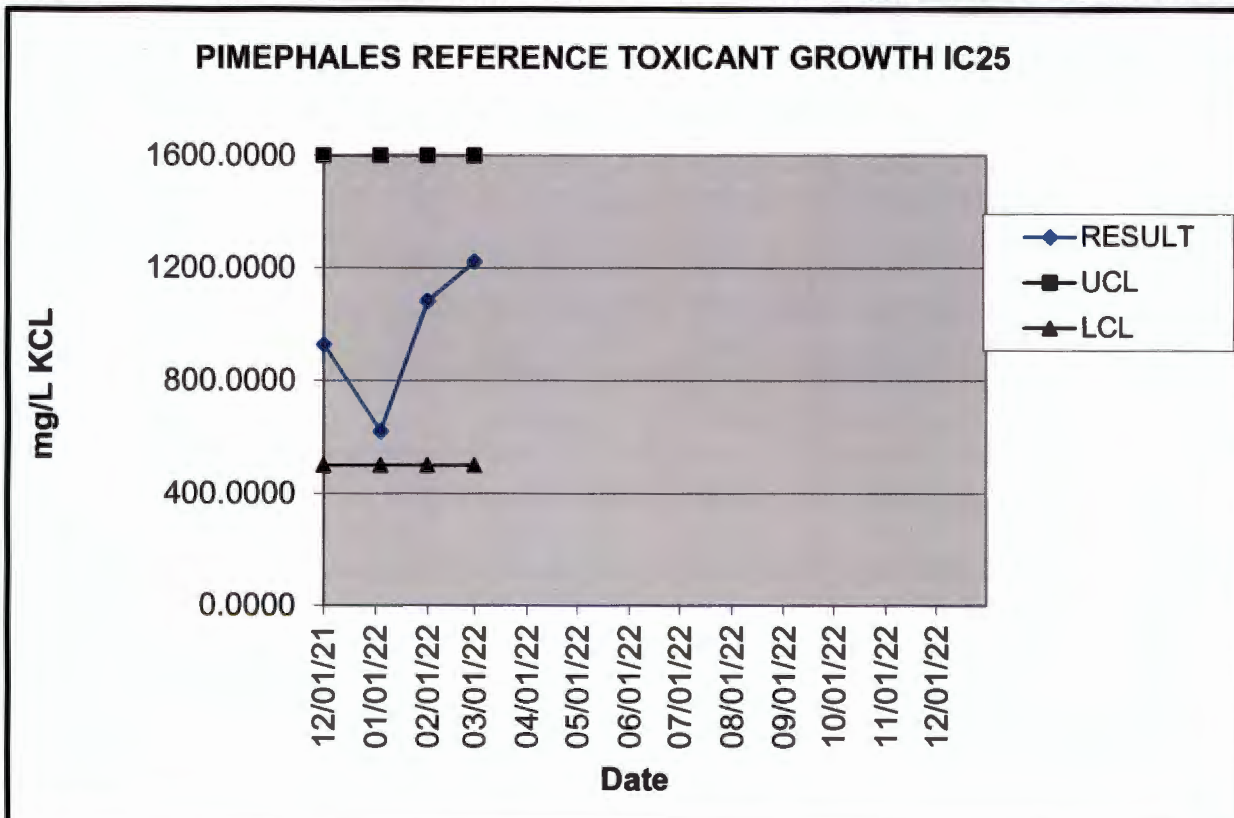
Waypoint Analytical Inc.

Attachment 2

Pimephales Chronic Reference Toxicant Data
Growth IC25

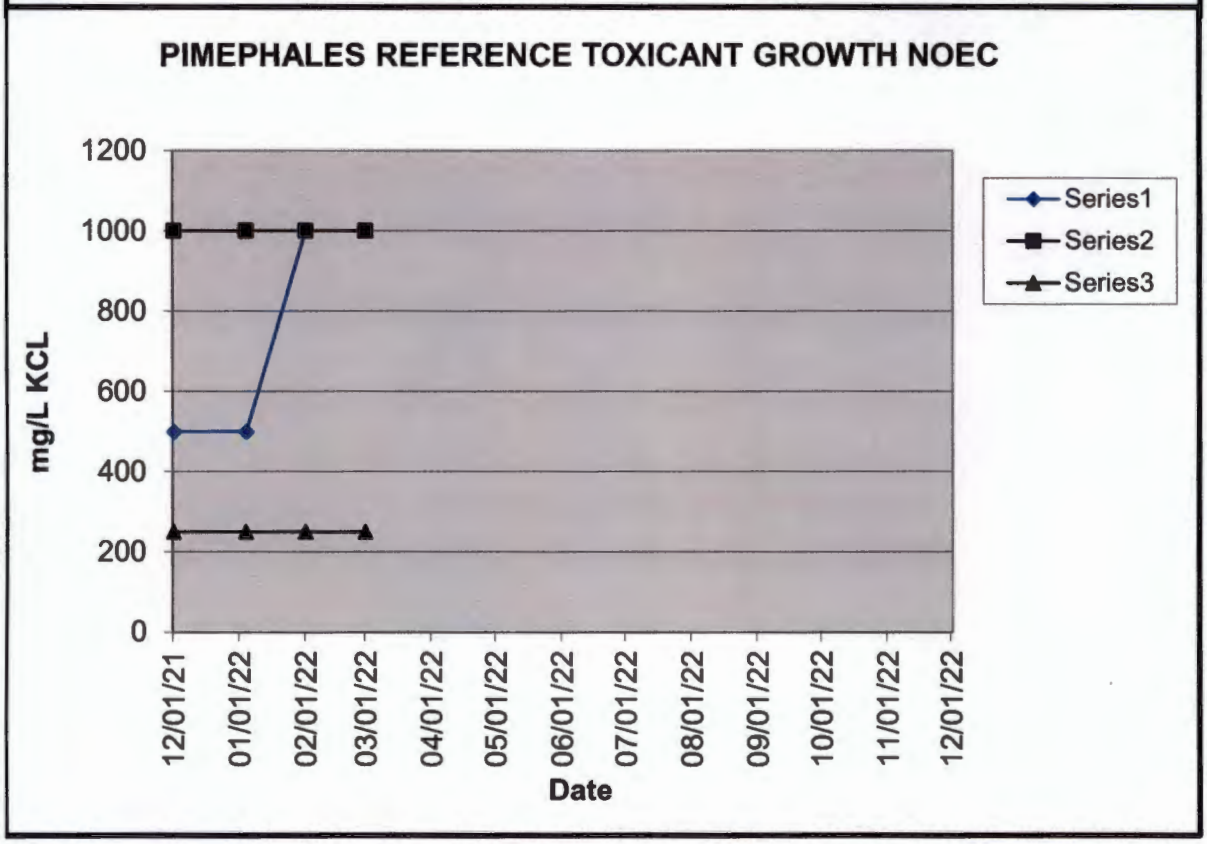
DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/01/21	927.9980	1600.0000	500.0000		0.00	928.00
01/04/22	621.4200	1600.0000	500.0000	216.78	27.98	774.71
02/01/22	1082.8200	1600.0000	500.0000	234.82	26.76	877.41
03/01/22	1222.5700	1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70
		1600.0000	500.0000	257.96	26.77	963.70



Waypoint Analytical Inc.
Attachment 2

Pimephales Chronic Reference Toxicant Data
Growth NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	PMSD	MEAN
12/01/21	500	1000	250		0.00	15.06	500.00
01/04/22	500	1000	250	0.00	0.00	25.60	500.00
02/01/22	1000	1000	250	288.68	43.30	22.31	666.67
03/01/22	1000	1000	250	288.68	38.49	26.26	750.00
		1000	250	288.68	38.49	15.48	750.00
		1000	250	288.68	38.49	24.44	750.00
		1000	250	288.68	38.49	25.89	750.00
		1000	250	288.68	38.49	16.16	750.00
		1000	250	288.68	38.49	19.30	750.00
		1000	250	288.68	38.49	22.55	750.00
		1000	250	288.68	38.49	18.90	750.00
		1000	250	288.68	38.49	24.64	750.00
		1000	250	288.68	38.49	23.31	750.00

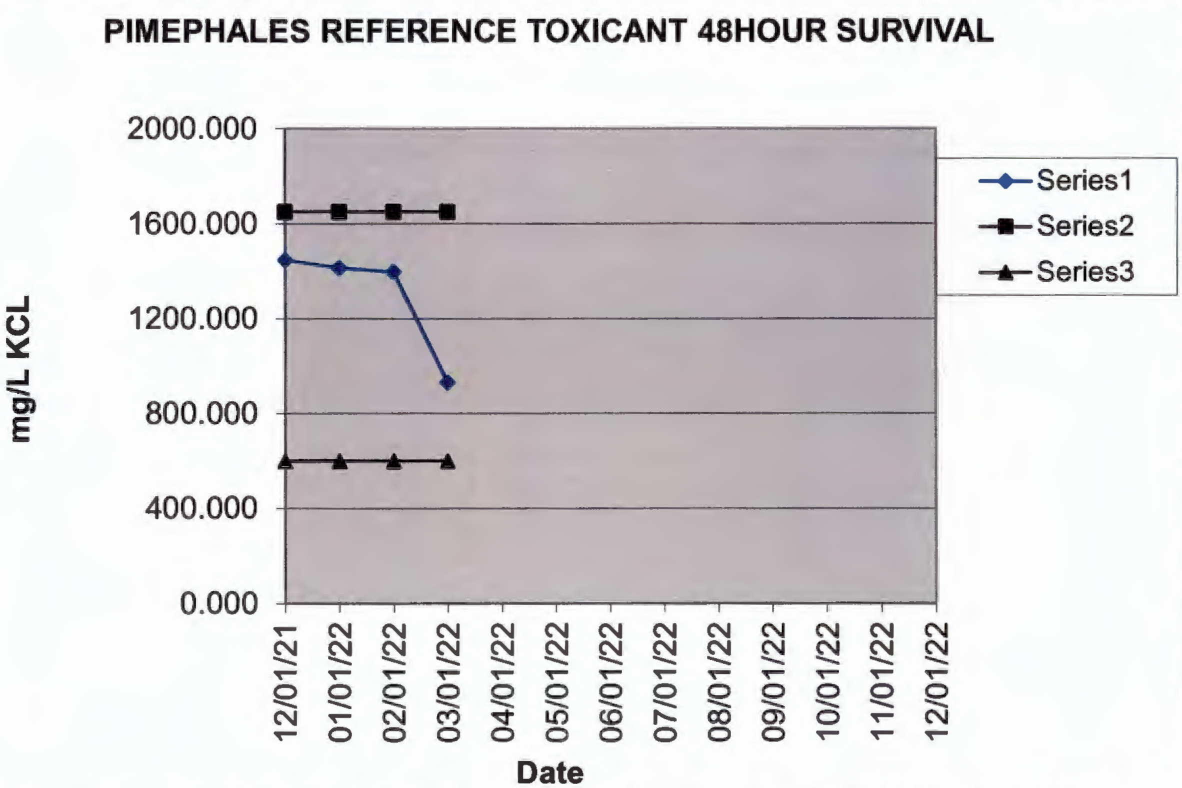


Waypoint Analytical Inc.

Attachment 2

Pimephales Chronic Reference Toxicant Data
48Hour Survival

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/02/21	1447.270	1650.00	600.00		0.00	1447.27
01/05/22	1414.210	1650.00	600.00	23.38	1.63	1430.74
02/02/22	1397.700	1650.00	600.00	25.24	1.78	1419.73
03/02/22	933.033	1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05
		1650.00	600.00	244.22	18.81	1298.05



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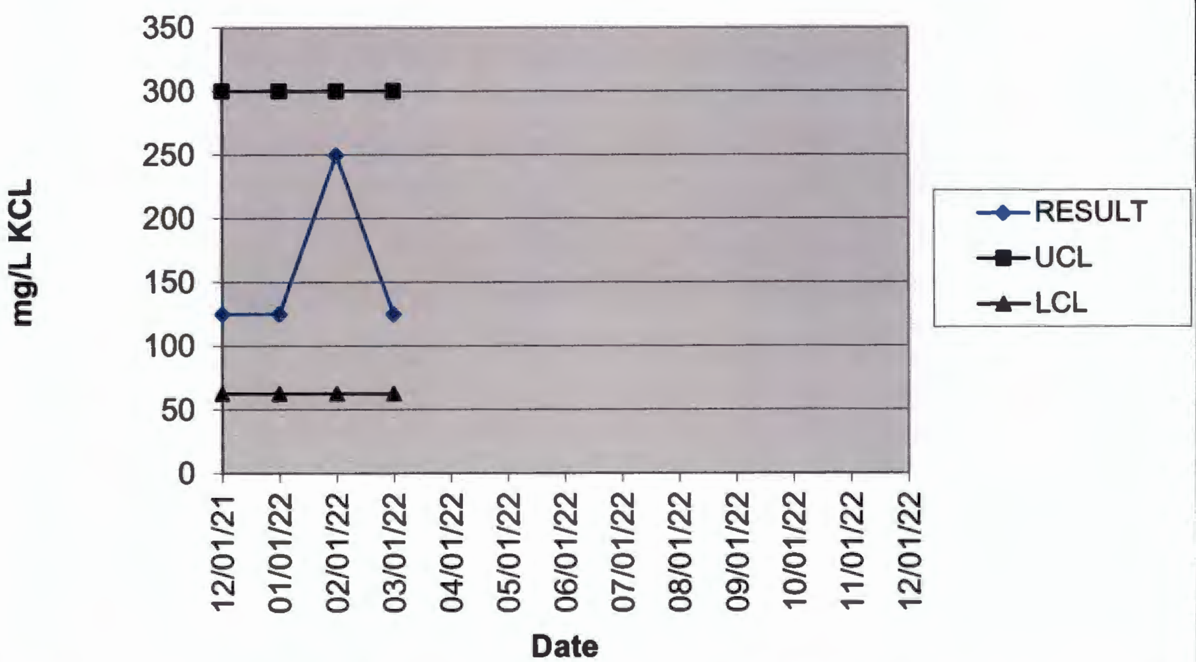
Attachment 2

CeriodaphniaChronic Reference Toxicant Data
Survival NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/01/21	125	300	62.5			125.00
01/04/22	125	300	62.5	0.00	0.00	125.00
02/01/22	250	300	62.5	72.17	43.30	166.67
03/01/22	125	300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25
		300	62.5	62.50	40.00	156.25

CERIODAPHNIA REFERENCE TOXICANT SURVIVAL NOEC



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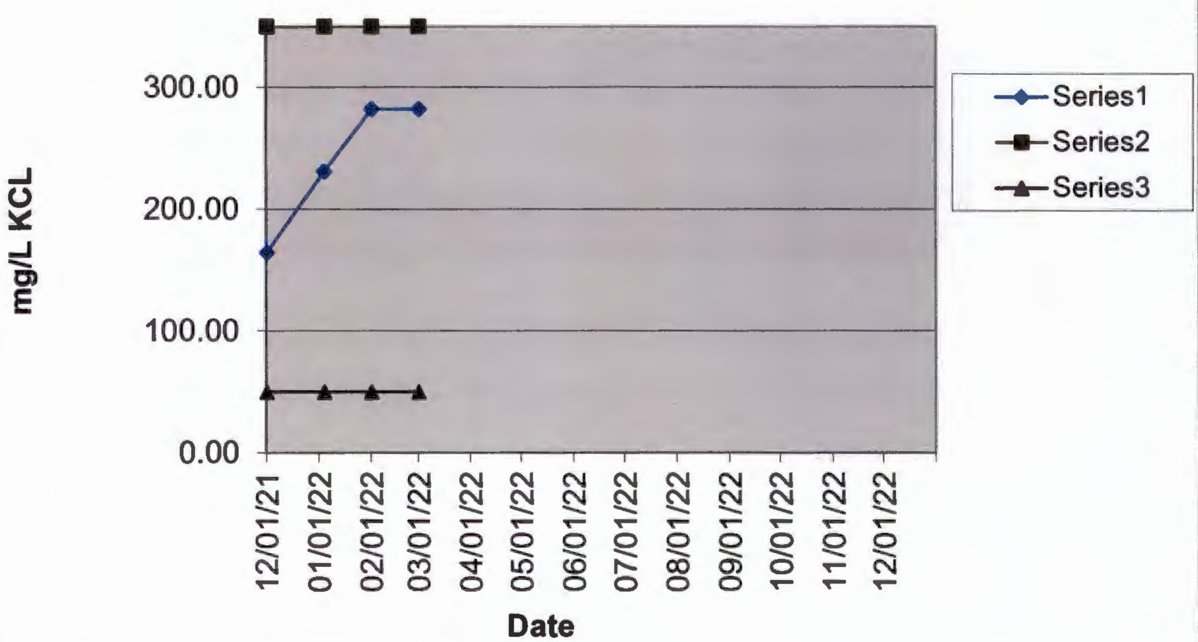
Attachment 2

Ceriodaphnia Chronic Reference Toxicant Data
Reproduction IC25

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/01/21	164.60	350.00	50.00	55.76	23.23	240.04
01/04/22	231.13	350.00	50.00	55.76	23.23	240.04
02/01/22	282.21	350.00	50.00	55.76	23.23	240.04
03/01/22	282.21	350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04
		350.00	50.00	55.76	23.23	240.04

CERIODAPHNIA REFERENCE TOXICANT REPRODUCTION IC25



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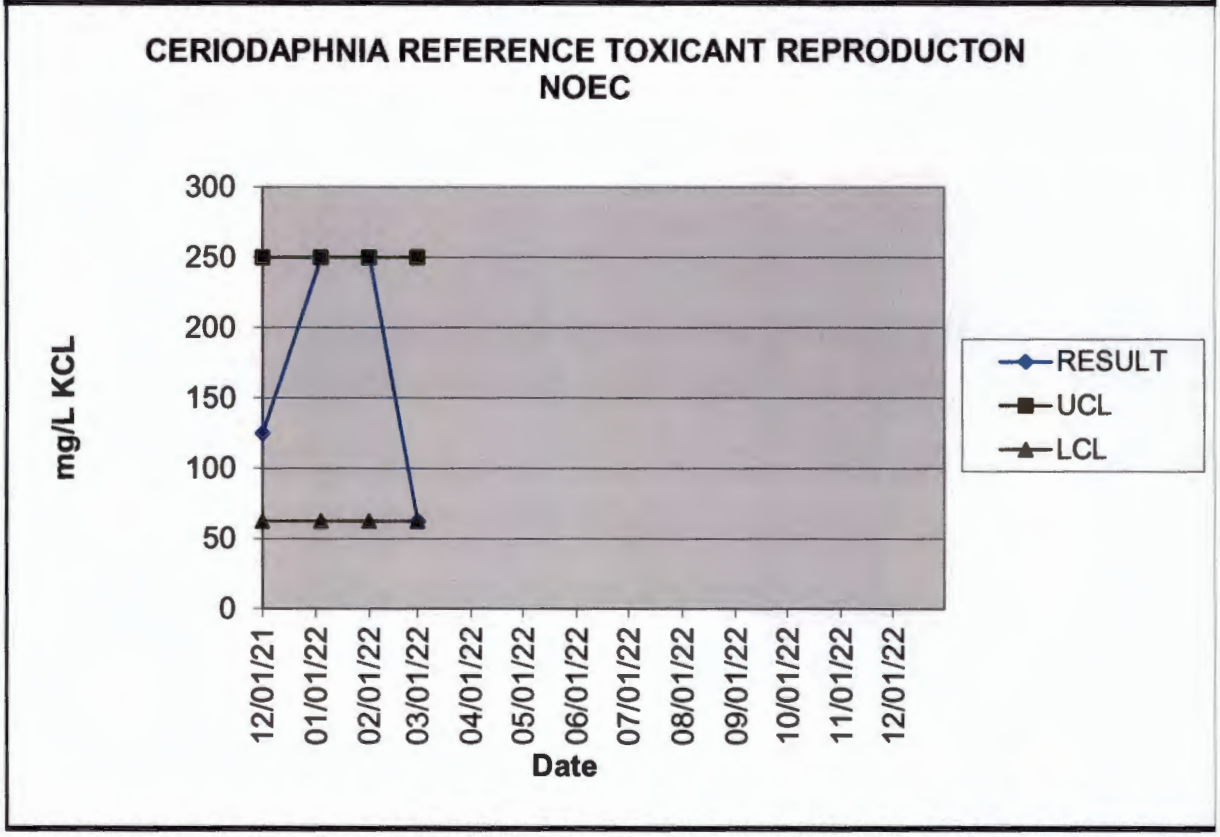
Attachment 2

Ceriodaphnia Chronic Reference Toxicant Data
Reproduction NOEC

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN	PMSD
12/01/21	125	250	62.5			125.00	14.94
01/04/22	250	250	62.5	88.39	47.14	187.50	28.31
02/01/22	250	250	62.5	72.17	34.64	208.33	23.51
03/01/22	62.5	250	62.5	93.75	54.55	171.88	37.50
		250	62.5	93.75	54.55	171.88	31.89
		250	62.5	93.75	54.55	171.88	41.54
		250	62.5	93.75	54.55	171.88	23.83
		250	62.5	93.75	54.55	171.88	23.26
		250	62.5	93.75	54.55	171.88	30.41
		250	62.5	93.75	54.55	171.88	39.35
		250	62.5	93.75	54.55	171.88	32.19
		250	62.5	93.75	54.55	171.88	38.64
		250	62.5	93.75	54.55	171.88	38.93



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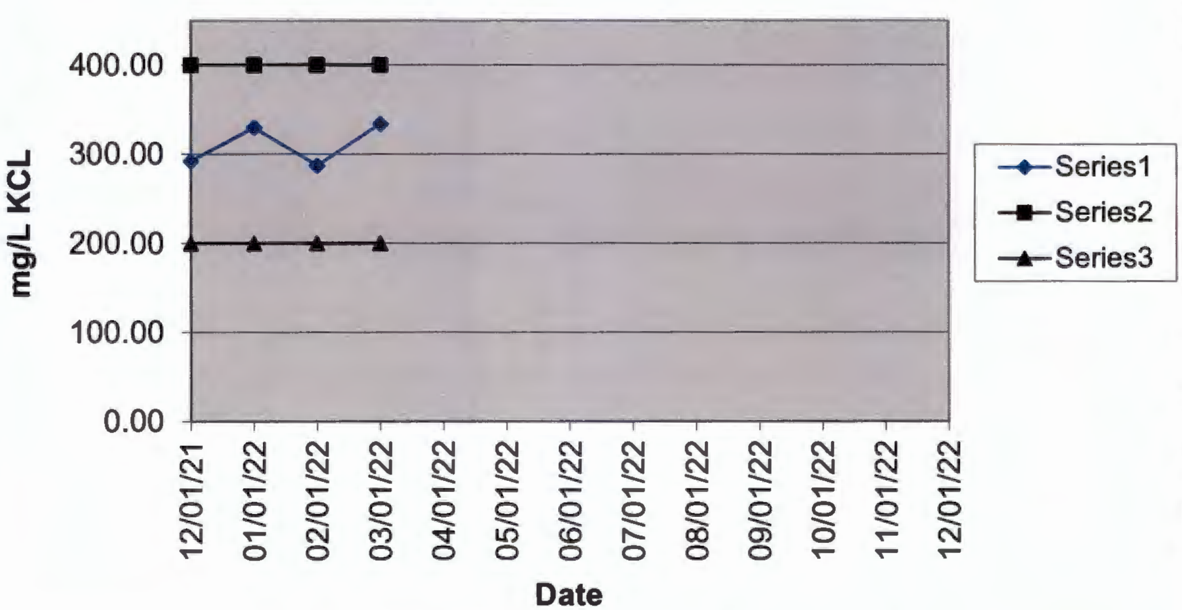
Attachment 2

Ceriodaphnia Chronic Reference Toxicity Data
48Hour Survival

DATE	RESULT	UCL	LCL	STDEV	CV%	MEAN
12/02/21	292.02	400.00	200.00			292.02
01/05/22	329.88	400.00	200.00	26.77	8.61	310.95
02/02/22	287.17	400.00	200.00	23.38	7.72	303.02
03/02/22	334.07	400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79
		400.00	200.00	24.61	7.92	310.79

CERIODAPHNIA REFERENCE TOXICANT 48HOUR SURVIVAL



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731-423-5330
1-800-TEC-1808
FAX 731-423-5326

PAGE 1 OF 1

CHAIN OF CUSTODY/FIELD DATA SHEET

CLIENT NAME:	City of Camden WWTP	PROJECT SITE:	Bioassay Monitoring	ANALYSES REQUESTED
ADDRESS:	397 Hildon King Rd	P.O. Required		
	Camden, TN 38320	RUSH?	(Lab MUST Be Notified)	CLIENT # 00854
PHONE:	731-584-7986 David Tuck	____ <24 hr. 200%		DATE NEEDED:
Email:	cityofcamden2@bellsouth.net	____ 24-48 hr 100%		
COLLECTED BY:		____ 48-72 hr. 50%		FAX? __No __Yes

# OF CONT.	SAMPLE DESCRIPTION/LOCATION	Start Date/ Time	End Date/ Time	TYPE COMP	TYPE GRAB	MATRIX*	PRESERVATIVE	ANALYSES REQUESTED
2 Gal	EFFLUENT	4/3/22	4/4/22	X		WW	NONE	BIOASSAY
1	EFFLUENT	1200	830	X		WW	NONE	Alk/Cl_res
1	EFFLUENT	1	1	X		WW	HN03	HARDNESS
		FLOW (GPD):						

22-094-0006
00854
04-04-2022
10:32:11
City of Camden
Camden Wate Water Plant - IC 25 Bioassay - Annual

*Matrix: SS - Soil GW - Groundwater TW - Treated Groundwater WW - Wastewater WS - Water Sample WO - Waste Oil DW - Drinking Water SL - Sludge SD - Sediment OT - Other____

Remarks:
Cl_res: _____
Conductivity: _____
DO: _____ 2,2,3
pH: _____

SHIPPED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X
OTHER		COOLER #:	

SAMPLES RETURNED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X

Condition: (lab use only)

RELINQUISHED BY: Kevin Hall	DATE: 4/4/22	TIME: 1030	RECEIVED BY:	
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	TEMP: 2°C / Bottles Received: 4
RELINQUISHED BY:	DATE:	TIME:	RECEIVED FOR LAB BY:	DATE: 4/4/22 / TIME: 1030 / pH checked YES NO X

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731-423-5330
1-800-TEC-1808
FAX 731-423-5326

PAGE 1 OF 1

CHAIN OF CUSTODY/FIELD DATA SHEET

CLIENT NAME:	City of Camden WWTP	PROJECT SITE:	Bioassay Monitoring	
ADDRESS:	397 Hildon King Rd	P.O. Required		
	Camden, TN 38320	RUSH?	(Lab MUST Be Notified)	CLIENT # 00854
PHONE:	731-584-7986 David Tuck	____ <24 hr. 200%		DATE NEEDED:
Email:	cityofcamden2@bellsouth.net	____ 24-48 hr 100%		
COLLECTED BY:	Kevin	____ 48-72 hr. 50%		FAX? __No __Yes

# OF CONT.	SAMPLE DESCRIPTION/LOCATION	Start Date/ Time	End Date/ Time	TYPE COMP	TYPE GRAB	MATRIX*	PRESERVATIVE	ANALYSES REQUESTED
2 Gal	EFFLUENT	4/5/22	4/6/22	X		WW	NONE	BIOASSAY
1	EFFLUENT	500	830	X		WW	NONE	Alk/Cl_res
1	EFFLUENT	1	(	X		WW	HN03	HARDNESS
		FLOW (GPD):						

22-094-0006
00854
04-04-2022
10:32:11
City of Camden
Camden Wate Water Plant - IC 25 Bioassay - Annual

*Matrix: SS - Soil GW - Groundwater TW - Treated Groundwater WW - Wastewater WS - Water Sample WO - Waste Oil DW - Drinking Water SL - Sludge SD - Sediment OT - Other____

Remarks:
Cl_res: _____ . _____
Conductivity: _____ . _____
DO: _____ . _____ 2,2,3
pH: _____ . _____

SHIPPED VIA:					
UPS		CLIENT VEHICLE			
FEDX		LAB VEHICLE	X		
OTHER		COOLER #:			

RELINQUISHED BY:	Kevin Hall	DATE: 4/6/22	TIME: 1000	RECEIVED BY:	
RELINQUISHED BY:		DATE:	TIME:	RECEIVED BY:	
RELINQUISHED BY:		DATE:	TIME:	RECEIVED FOR LAB BY:	

SAMPLES RETURNED VIA:				Condition: (lab use only)
UPS		CLIENT VEHICLE		
FEDX		LAB VEHICLE	X	
TEMP: 2		Bottles Received: 4		
DATE: 4/6/22		TIME: 1000		pH checked YES NO X

Waypoint Analytical

2269 Dr. F. E. Wright Dr. - Jackson, TN 38305

731-423-5330
1-800-TEC-1808
FAX 731-423-5326

PAGE 1 OF 1

CHAIN OF CUSTODY/FIELD DATA SHEET

CLIENT NAME:	City of Camden WWTP	PROJECT SITE:	Bioassay Monitoring	ANALYSES REQUESTED
ADDRESS:	397 Hildon King Rd	P.O. Required		
	Camden, TN 38320	RUSH?	(Lab MUST Be Notified)	CLIENT # 00854
PHONE:	731-584-7986 David Tuck	____ <24 hr. 200%		DATE NEEDED:
Email:	cityofcamden2@bellsouth.net	___ 24-48 hr 100%		
COLLECTED BY:	Kevin	____ 48-72 hr. 50%		FAX? __No __Yes

# OF CONT.	SAMPLE DESCRIPTION/LOCATION	Start Date/ Time	End Date/ Time	TYPE COMP	TYPE GRAB	MATRIX*	PRESERVATIVE	ANALYSES REQUESTED
3 Gal	EFFLUENT	4/7/22	4/8/22	X		WW	NONE	BIOASSAY
1	EFFLUENT	800	800	X		WW	NONE	Alk/Cl_res
1	EFFLUENT	1	1	X		WW	HN03	HARDNESS
		FLOW (GPD):						

22-094-0006
00854
City of Camden
04-04-2022
Camden Wate Water Plant - IC 25 Bioassay - Annual
10:32:11

*Matrix: SS - Soil GW - Groundwater TW - Treated Groundwater WW - Wastewater WS - Water Sample WO - Waste Oil DW - Drinking Water SL - Sludge SD - Sediment OT - Other____

Remarks:
Cl_res: _____ . _____
Conductivity: _____ . _____
DO: _____ . _____ 2,2,3
pH: _____ . _____

SHIPPED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X
OTHER		COOLER #:	

SAMPLES RETURNED VIA:

UPS		CLIENT VEHICLE	
FEDX		LAB VEHICLE	X

Condition: (lab use only)

RELINQUISHED BY:	Kevin Hall	DATE: 4/8/22	TIME: 950	RECEIVED BY:	
RELINQUISHED BY:		DATE:	TIME:	RECEIVED BY:	TEMP: 2°C / Bottles Received: 5
RELINQUISHED BY:		DATE:	TIME:	RECEIVED FOR LAB BY:	DATE: 4/8/22 / TIME: 950 / pH checked YES NO X

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(800) 767-5859
www.envsci.com

June 10, 2021

Mr. David Tuck
Town of Camden STP
PO Box 779
Camden, TN 38320-0779

Biomonitoring Results
Pace National Identification #: L1327211-01,-02,-03

Attached are the results for toxicity test performed: March 16-23, 2021

A summary of the findings is presented below:

Test Species	*Ceriodaphnia dubia*	*Pimephales promelas*
EPA Method	EPA Method 1002.0	EPA Method 1000.0
Test Concentrations	2.48%, 5%, 9.9%, 19.8%, 39.6%	2.48%, 5%, 9.9%, 19.8%, 39.6%
Permit Limit	9.9%	9.9%
Test Endpoint	IC25	IC25
Test Result	**> 39.6%**	**> 39.6%**
	effluent successfully meets permit requirements for the period	effluent successfully meets permit requirements for the period

Next Test Date	**Week of January 23, 2022**

Comments	**Town of Camden STP** **TN0064611**

If you have any questions or comments concerning the enclosed report, please do not hesitate to contact us.

Pace Analytical®
National Center for Testing & Innovation

Aquatic Biology Lab
615.773.6359
615.773.7544

Pace Analytical®
National Center for Testing & Innovation

Acute or Chronic? Chronic
Screen or Definitive? Definitive
Test Date: March 16-23, 2021
Lab Identification #: L1327211-01,-02,-03

TOXICITY TEST REPORT SHEET

1). Facility/Discharger: Town of Camden STP

2). Contact Person: Mr. David Tuck
phone (facility): 731.584.7986
email 1: cityofcamden2@bellsouth.net

3). Permit # or Project ID: TN0064611

4). Report Address
PO Box 779
Camden, TN 38320-0779

5). Receiving Stream:

6). Laboratory Name: Pace National

7). Laboratory Contact (phone): Brandon Etheridge, Sr. Aquatic Biologist 615.773.6359

8). Outfall(s) Tested: Final Effluent

9). Test Species	#1 *Ceriodaphnia dubia*	#2 *Pimephales promelas*
10). Species Age	#1 Neonates, <24-hr	#2 24-36 hours old
11). Test Conditions (Static or Static-Renewal?)	#1 Static-Renewal	#2 Static-Renewal

12). Dilution Water Type (synthetic, receiving stream): Moderately Hard SDW

13). Aeration? (Before/During Test): none

14). Dechlorination?: none

15). Original Chlorine Level: <0.2mg/L, * , *
* Cl2 reading were missed. Lab error. BE 6/10/21

16). Report prepared by: Clarissa Moore, Biologist

B Eth — signature of person performing final review — 6-10-2021 — date

Brandon Etheridge — name (typed or printed) — Sr. Aquatic Biologist — title

Pace Analytical®
National Center for Testing & Innovation

Facility/Discharger: Town of Camden STP
Lab Identification #: L1327211-01,-02,-03
Test Date: March 16-23, 2021

SAMPLING SUMMARY

Sample	Sample Type Grab or Composite	Volume Collected	Sample Collection Begin (MM/DD/Time)	Sample Collection End (MM/DD/Time)	Flow Rate (at collection)	Sample Temperature (when received at lab)
1	composite	1 gallon	3/15/2021 @ 10:30	3/16/2021 @ 9:25		0.2 deg C
2	composite	1 gallon	3/16/2021 @ 9:25	3/17/2021 @ 9:00		0.2 deg C
3	composite	1 gallon	3/18/2021 @ 9:40	3/19/2021 @ 10:20		0.4 deg C

Comments:

TEST PERFORMANCE

Species #1

***Ceriodaphnia dubia* (water flea)**

3/16/2021 @ 15:33 to 3/22/2021 @ 14:56

Species Age
< 24 hrs old, within 8 hrs of the same age

Organism Source
Pace National, in-house cultures

Acclimation Procedure
cultured in Moderately Hard SDW at 25 deg C

Test Duration
3-Brood

Feeding Regime
0.15 *mL* YCT and 0.15 *mL* algal suspension, daily, upon renewal

Type of Test Chamber
polystyrene cup

Volume of Test Chamber
30 *mL*

Volume of Solution Used Per Test Chamber
20 *mL*

Number of Test Organisms Per Test Chamber
one (1)

Number of Replicates Per Treatment
ten (10)

Species #2

***Pimephales promelas* (fathead minnow)**

3/16/2021 @ 15:40 to 3/23/2021 @ 11:49

Species Age	Hatch Date	Pace National Lot #
24-36 hours old	3/15/2021	031521HD

Organism Source
Aquatox, Inc. - Hot Springs, AR

Acclimation Procedure
acclimated in 20% DMW at 25 deg C for about 2 hrs

Test Duration
7-Day

Feeding Regime
0.15 *mL* - 0.2 *mL* newly hatched brine shrimp nauplii, twice daily

Type of Test Chamber
polypropylene beaker

Volume of Test Chamber
500 *mL*

Volume of Solution Used Per Test Chamber
250 *mL*

Number of Test Organisms Per Test Chamber
ten (10)

Number of Replicates Per Treatment
four (4)

ADDITIONAL TOXICITY TEST INFORMATION

Copies of all bench sheets and statistical calculations and printouts obtained during the test are attached in the Appendix. Electronically entered data is entered in real time and digitally tracked to ensure traceability.
Methods/Instrumentation used in chemical analysis:

Dissolved Oxygen: YSI 5000 DO Meter/Probe (serial #01L0435)
pH: Beckman 390pH/Temp/mV/ISE Meter
Conductivity: Thermo Orion Model 150A+
pH/RDO/Conductivity: Thermo Scientific Orion VersaStar (serial #V 02105)
Water Bath: Lindberg/Blue, Model WB1140A-1 (serial #S01M-580360-SM)
Temperature: Thermometers calibrated to NIST certified thermometer
Alkalinity: Lachat
Hardness: Lachat
Total Residual Chlorine: Hach Pocket Colorimeter, Model #DR300 (serial #19110A002361)
Environmental Chambers: 25 degrees C + 1.0 degree - Thermo-Kool
Environmental Chambers (for Colorado tests): 20 degrees C $\pm$ 1.0 degree - Thermo Scientific Model 3759
Light Quality: Ambient Lab Illumination
Light Intensity: 50-100 ft-c - VWR Traceable Dual-Range Light Meter- Model 62344-944 (S/N 200000293)
Photoperiod: 16 hours light, 8 hours dark
Drying: Overnight at greater than 60 degrees Celsius in a Fisher Scientific Isotemp Oven, Model 655F
Mean Dry Weight: Determined using Mettler Toledo Balance, AT261 Delta Range
Reference Weights (Set #1): Class 1, TREOMNER, Inc., serial number 85035
Reference Weights (Set #2): Class 1, TREOMNER, Inc., serial number 67812
EPA Acute Manual Edition and Date: EPA-821-02-012 October 2002, Fifth Edition
EPA Chronic Manual Edition and Date: EPA-821-R-02-013 October 2002, Fourth Edition

This method is performed only by Assistant Biologists, Biologists, and Senior Biologists that have experience with aquatic toxicity testing. Laboratory Technicians, Chemists, and any other laboratory personnel that are not experienced with toxicity testing will not handle test organisms during a toxicity evaluation. Lab Techs, Chemists, and others may assist (under supervision) with the gathering of data during the evaluation (pH, DO, conductivity, alkalinity, hardness, etc.), but will not be allowed to do any work with the test organisms themselves. The following analysts have met Technical Training Qualifications and their initials (in parenthesis) can be found on the bench sheets in this report: **Brandon Etheridge (BE); Cody Medley (CM); Clarissa Moore (CGM); Nadiar Yakob (NY); Emily Novick (EN); Makayla Graham (MJG); Josh Kryger (JK); Lwiiindi Mudenda (LM); Mike Lowe (ML); Heidi Buckett (HB); Nathan Hawkins (NH);**

Indicate below any other relevant information that may aid in the evaluation of this report. Include any deviations from EPA Methodology that were necessary for these tests as well as any sample manipulations which were performed, such as aeration, dechlorination with sodium thiosulfate (etc) and the justification for such manipulations or deviations. Attach additional pages as needed.

<no deviations to report>

Pace Analytical®
National Center for Testing & Innovation

Facility/Discharger: Town of Camden STP
Lab Identification #: L1327211-01,-02,-03
Test Date: March 16-23, 2021

Toxicity Test Results

Results of a *Ceriodaphnia* (Genus) *dubia* (Species) 3-Brood, Survival & Reproduction Test (Type/Duration)

Conducted 3/16/2021 to 3/22/2021 Using Effluent from Outfall: Final Effluent

Test Solution	Percent Surviving (time intervals used - days)								# of Young	
	0	1	2	3	4	5	6	7	Total	Mean
Control	100	100	100	100	100	100	100		270	27.0
2.48% Effluent	100	100	100	100	100	100	100		327	32.7
5% Effluent	100	100	100	100	100	100	100		309	30.9
9.9% Effluent	100	100	100	90	90	90	90		324	32.4
19.8% Effluent	100	100	100	100	100	100	100		355	35.5
39.6% Effluent	100	100	90	90	90	90	90		303	30.3

Permit Limit: 9.9%

IC_{25} Value: >39.6% survival >39.6% reproduction

Confidence Limits
Upper Limit:
Lower Limit:

Confidence Limits
Upper Limit
Lower Limit

Coefficient of Variance (CV%): 28.0%

Statistical methods used to determine NOEC (if applicable):
NOEC not applicable for this evaluation

Percent Minimum Significant Difference: 40.5%

PMSD = Minimum Significant Difference X 100 / Control Mean (reproduction)

The PMSD describes the variability that occurred within the test. If the PMSD value for a given test is less than or equal to the 90th PMSD (47 for *Ceriodaphnia*), the test's variability measure is within the normal range expected for the test.

INTERPRETATION OF RESULTS

Ceriodaphnia dubia (water flea) - No inhibition was demonstrated. Using Linear Interpolation Method, the IC25 (inhibition concentration causing a 25% reduction in survival or reproduction of the test organisms) is reported as being greater than (>) 39.6% effluent.

The results of the evaluation indicate there was no toxicity exhibited in the *Ceriodaphnia* test. The permittee successfully meets *Ceriodaphnia* requirements for the period.

Pace Analytical®
National Center for Testing & Innovation

Facility/Discharger: Town of Camden STP
Lab Identification #: L1327211-01,-02,-03
Test Date: March 16-23, 2021

Toxicity Test Results

Results of a *Pimephales* (Genus) *promelas* (Species) 7-day, Survival & Growth Test (Type/Duration)

Conducted 3/16/2021 to 3/23/2021

Using Effluent from Outfall: Final Effluent

Test Solution	Percent Surviving (time intervals used - days)								Dry Weight (mg)	
	0	1	2	3	4	5	6	7	Total	Mean
Control	100	100	100	100	100	100	100	100	2.2140	0.5535
2.48% Effluent	100	100	100	100	100	100	100	100	2.1280	0.5320
5% Effluent	100	100	97.5	95	95	92.5	92.5	87.5	2.0030	0.5007
9.9% Effluent	100	100	100	97.5	95	95	92.5	85	1.8930	0.4733
19.8% Effluent	100	97.5	97.5	92.5	82.5	80	77.5	75	1.6790	0.4198
39.6% Effluent	100	100	100	100	97.5	97.5	97.5	87.5	1.8550	0.4638

Permit Limit: 9.9%

IC_{25} Value: > 39.6% survival > 39.6% growth

Confidence Limits
Upper Limit:
Lower Limit:

Confidence Limits
Upper Limit
Lower Limit

Coefficient of Variance (CV%): 17.8%

Statistical methods used to determine NOEC (if applicable):
NOEC not applicable for this evaluation

Percent Minimum Significant Difference: 31.3%

$$PMSD = \frac{\text{Minimum Significant Difference X 100}}{\text{Control Mean (growth)}}$$

The PMSD describes the variability that occurred within the test. If the PMSD value for a given test is less than or equal to the 90th PMSD (30 for fathead minnow), the test's variability measure is within the normal range expected for the test.

INTERPRETATION OF RESULTS

Pimephales promelas (fathead minnow) - No inhibition was demonstrated. Using Linear Interpolation Method, the IC25 (inhibition concentration causing a 25% reduction in survival or growth of the test organisms) is reported as being greater than (>) 39.6% effluent.

The results of the evaluation indicate there was no toxicity exhibited in the fathead minnow test. The permittee successfully meets minnow requirements for the period.

APPENDIX

Camden STP, Town of

NPDES #: TN0064611

Test Date: March 16-23, 2021

Lab ID #: L1327211 -01,-02,-03

Comments: Control 8

Tue 3/16/21

Initials	pH	Con.	DO	Time	Analyst
Control	7.8	251.3	8.6	14:29:22	NH
Dup. Control	7.8	251.8	8.3	14:30:22	NH
2.48	7.8	253.1	8.4	14:30:53	NH
Dup. 2.48	7.8	253.3	8.3	14:31:20	NH
5	7.8	253.7	8.3	14:31:46	NH
Dup. 5	7.8	254.3	8.3	14:32:20	NH
9.9(PL)	7.9	254.7	8.3	14:32:48	NH
Dup. 9.9(PL)	7.9	255.6	8.3	14:33:11	NH
19.8	8	260	8.4	14:33:40	NH
Dup. 19.8	8	260.2	8.4	14:34:07	NH
39.6	8.1	267.3	8.4	14:34:39	NH
Dup. 39.6	8.1	268.8	8.5	14:35:06	NH

Wed 3/17/21

Initials	pH	Con.	DO	Time	Analyst
Control	7.9	248	8.8	14:01:57	MP
2.48	7.8	250.1	7.9	14:05:55	MP
5	7.8	251.2	8.1	14:06:20	MP
9.9(PL)	7.9	251.8	8.3	14:06:49	MP
19.8	7.9	256.3	8.4	14:07:17	MP
39.6	8	264.7	8.4	14:07:46	MP

	Ceriodaphnia dubia				*Pimephales promelas*			
Finals	pH	DO	Time	Analyst	pH	DO	Time	Analyst
Control	7.9	8.4	15:31:29	JK	8	7.5	7:57:09	JK
Dup. Control	7.8	8.2	15:32:16	JK	7.9	7.5	7:57:26	JK
2.48	7.8	8.2	15:32:35	JK	7.8	7.5	7:58:08	JK
Dup. 2.48	7.8	8.2	15:32:53	JK	7.7	7.4	7:58:27	JK
5	7.8	8.2	15:33:12	JK	7.8	7.4	7:58:57	JK
Dup. 5	8.1	8.2	15:33:47	JK	7.8	7.5	7:59:16	JK
9.9(PL)	7.8	8.3	15:34:09	JK	7.8	7.6	7:59:37	JK
Dup. 9.9(PL)	7.8	8.5	15:34:31	JK	7.8	7.6	7:59:59	JK
19.8	7.8	8.6	15:34:57	JK	7.8	7.6	8:00:24	JK
Dup. 19.8	7.8	8.7	15:35:20	JK	7.8	7.6	8:00:43	JK
39.6	7.9	8.7	15:35:46	JK	7.8	7.5	8:01:50	JK
Dup. 39.6	7.9	8.8	15:36:13	JK	7.8	7.5	8:02:10	JK

Thu 3/18/21

Initials	pH	Con.	DO	Time	Analyst
Control	7.9	248.1	8.3	15:22:21	NH
2.48	7.9	249.2	8.3	15:22:49	NH
5	7.9	253.3	8.3	15:23:19	NH
9.9(PL)	7.9	257.1	8.4	15:23:45	NH
19.8	8	260.5	8.3	15:24:10	NH
39.6	8	270.7	8.3	15:24:36	NH

	Ceriodaphnia dubia				*Pimephales promelas*			
Finals	pH	DO	Time	Analyst	pH	DO	Time	Analyst
Control	7.8	8.9	16:34:52	NH	7.3	7.8	7:31:09	MP
2.48	7.8	8.6	16:35:15	NH	7.4	7.6	7:33:15	MP
5	7.8	8.6	16:35:38	NH	7.3	7.7	7:33:52	MP
9.9(PL)	7.8	8.7	16:36:01	NH	7.4	7.4	7:35:07	MP
19.8	7.9	8.8	16:36:29	NH	7.5	7.5	7:35:35	MP
39.6	7.9	8.7	16:36:58	NH	7.5	7.8	7:35:58	MP

Fri 3/19/21

Initials	pH	Con.	DO	Time	Analyst
Control	7.8	232.2	9.1	14:35:33	MJG
2.48	7.8	238.8	8.6	14:36:22	MJG
5	7.8	238.2	8.4	14:37:08	MJG
9.9(PL)	7.9	246.2	8.5	14:38:06	MJG
19.8	7.9	264.6	8.3	14:38:39	MJG
39.6	8	272.9	8.1	14:39:28	MJG

	Ceriodaphnia dubia				*Pimephales promelas*			
Finals	pH	DO	Time	Analyst	pH	DO	Time	Analyst
Control	7.8	8.4	17:02	HB	7.7	7.7	7:52:05	JK
2.48	7.8	8.4	17:03	HB	7.6	7.3	7:52:23	JK
5	7.8	8.5	17:05	HB	7.7	7.3	7:55:14	JK
9.9(PL)	7.8	8.5	17:05	HB	7.7	7.5	7:55:35	JK
19.8	7.9	8.5	17:06	HB	7.8	7.7	7:56:05	JK
39.6	7.9	8.5	17:07	HB	7.7	7.8	7:56:22	JK

Camden STP, Town of

NPDES #: TN0064611 **Test Date:** March 16-23, 2021

Sat 3/20/21

Initials

	pH	Con.	DO	Time	Analyst
Control	7.9	252.9	8.8	10:53:52	MJG
2.48	7.9	254.2	8.8	10:54:26	MJG
5	8	259.8	8.7	10:54:52	MJG
9.9(PL)	8	256	8.6	10:56:03	MJG
19.8	8	258.4	8.6	10:56:52	MJG
39.6	8	267.3	8.7	10:57:32	MJG

Finals

	Ceriodaphnia dubia				*Pimephales promelas*			
	pH	DO	Time	Analyst	pH	DO	Time	Analyst
Control	7.9	8.1	10:26:32	MJG	7.8	8.2	7:58:22	HB
2.48	7.8	7.9	10:28:41	MJG	7.8	7.9	7:59:01	HB
5	7.8	7.9	10:29:30	MJG	7.7	7.8	7:59:42	HB
9.9(PL)	7.8	8	10:30:33	MJG	7.8	7.7	8:00:02	HB
19.8	7.9	8.2	10:31:34	MJG	7.8	7.7	8:00:27	HB
39.6	7.9	8.1	10:32:53	MJG	7.8	7.7	8:00:52	HB

Sun 3/21/21

Initials

	pH	Con.	DO	Time	Analyst
Control	8.1	262.3	8.2	11:44:08	EN
2.48	8.1	265.7	8.4	11:44:42	EN
5	8.1	281.8	8.6	11:45:03	EN
9.9(PL)	8.1	273.8	8.6	11:45:24	EN
19.8	8	273.5	8.6	11:45:45	EN
39.6	8	277.7	8.6	11:46:13	EN

Finals

	Ceriodaphnia dubia				*Pimephales promelas*			
	pH	DO	Time	Analyst	pH	DO	Time	Analyst
Control	8	8.9	12:59:23	MP	7.8	8.7	7:51:50	MP
2.48	8	8.9	12:59:42	MP	7.7	8.4	7:52:14	MP
5	8	9	13:00:04	MP	7.7	8.2	7:52:48	MP
9.9(PL)	8	9	13:00:23	MP	7.7	8	7:53:32	MP
19.8	8	8.9	13:00:53	MP	7.7	8.1	7:54:16	MP
39.6	8.2	9.1	13:01:21	MP	7.7	8	7:54:43	MP

Mon 3/22/21

Initials

	pH	Con.	DO	Time	Analyst
Control	7.9	267	7.6	11:22:30	MP
2.48	7.9	278.1	7.3	11:23:28	MP
5	7.9	276.3	7.3	11:23:54	MP
9.9(PL)	7.9	282.6	7.3	11:25:12	MP
19.8	7.9	280.4	7.3	11:26:06	MP
39.6	7.9	280.7	7.3	11:27:14	MP

Finals

	Ceriodaphnia dubia				*Pimephales promelas*			
	pH	DO	Time	Analyst	pH	DO	Time	Analyst
Control	7.8	8.7	14:53:26	MP	7.6	8.2	7:43:37	MP
2.48	7.8	8	14:53:46	MP	7.7	8	7:44:33	MP
5	7.8	8	14:54:07	MP	7.7	7.9	7:44:57	MP
9.9(PL)	7.8	8	14:54:28	MP	7.7	8	7:45:21	MP
19.8	7.9	7.9	14:54:50	MP	7.7	8.1	7:45:46	MP
39.6	7.9	8.1	14:55:27	MP	7.6	7.6	7:46:23	MP

Tue 3/23/21

Initials

	pH	Con.	DO	Time	Analyst
Control					
2.48					
5					0
9.9(PL)					0
19.8					0
39.6					0

Finals

	Ceriodaphnia dubia				*Pimephales promelas*			
	pH	DO	Time	Analyst	pH	DO	Time	Analyst
Control					7.7	7.3	7:14:52	HB
2.48					7.7	6.9	7:15:21	HB
5				0	7.7	7	7:15:56	HB
9.9(PL)				0	7.6	7.1	7:16:25	HB
19.8				0	7.7	7.1	7:16:50	HB
39.6				0	7.6	7.1	7:17:12	HB

Initials

	pH		Con		DO	
	range	mean	range	mean	range	mean
Control	7.8-8.1	7.9	232.2-267	251.7	7.6-9.1	8.5
2.48	7.8-8.1	7.9	238.8-278.1	255.3	7.3-8.8	8.3
5	7.8-8.1	7.9	238.2-281.8	258.6	7.3-8.7	8.3
9.9(PL)	7.9-8.1	7.9	246.2-282.6	259.7	7.3-8.6	8.3
19.8	7.9-8	8.0	256.3-280.4	264.2	7.3-8.6	8.3
39.6	7.9-8.1	8.0	264.7-280.7	271.3	7.3-8.7	8.3

Finals

	Ceriodaphnia dubia				*Pimephales promelas*			
	pH		DO		pH		DO	
	range	mean	range	mean	range	mean	range	mean
Control	7.8-8	7.9	8.1-8.9	8.5	7.3-8	7.7	7.3-8.7	7.9
2.48	7.8-8	7.8	7.9-8.9	8.3	7.4-7.8	7.7	6.9-8.4	7.6
5	7.8-8.1	7.9	7.9-9	8.3	7.3-7.8	7.7	7-8.2	7.6
9.9(PL)	7.8-8	7.8	8-9	8.4	7.4-7.8	7.7	7.1-8	7.6
19.8	7.8-8	7.9	7.9-8.9	8.5	7.5-7.8	7.7	7.1-8.1	7.7
39.6	7.9-8.2	7.9	8.1-9.1	8.6	7.5-7.8	7.7	7.1-8	7.6

Camden STP, Town of

NPDES # TN0064611 **Test Date:** March 16-23, 2021

Lab ID #: L1327211 -01,-02,-03

Control #8

L# of Control		Alkalinity (mg/L)	Hardness (mg/L)	Carboy
L1327339-03	Tue 3/16/21	51.5	58.3	H 3-15
L1328439-02	Thu 3/18/21	45.1	57	H 3-17
L1329084-03	Sat 3/20/21	45.9	57.4	H 3-19

Control Alkalinity (mg/L)			
range:	45.1-51.5	mean:	47.5
Control Hardness (mg/L)			
range:	57-58.3	mean:	57.6

100% Effluent	Alkalinity (mg/L)	Hardness (mg/L)
Tue 3/16/21	87.3	74
Thu 3/18/21	91.4	77.7
Sat 3/20/21	82.9	76.1

Effluent Alkalinity (mg/L)			
range:	82.9-91.4	mean:	87.2
Effluent Hardness (mg/L)			
range:	74-77.7	mean:	75.9

	Total Res. Cl_2 (mg/L)	Analyst
Tue 3/16/21	<0.2	NY
Thu 3/18/21	*	
Sat 3/20/21	*	

*Cl2 for Samples #2 and #3 missed due to laboratory error.

Temperature *Pimephales promelas* (°C)

	Tue 3/16/21	Wed 3/17/21	Thu 3/18/21	Fri 3/19/21	Sat 3/20/21	Sun 3/21/21	Mon 3/22/21	Tue 3/23/21
	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:
	MP	NY	NY	HB	JK	NY	NY	NY
Control	25.9°C	24.6°C	24.6°C	24.3°C	24.3°C	25.3°C	24.6°C	24.9°C
2.48	26.0°C	24.5°C	24.5°C	24.6°C	24.3°C	25.3°C	24.8°C	24.8°C
5	26.0°C	24.8°C	241.9°C	24.9°C	24.4°C	25.1°C	24.8°C	24.8°C
9.9(PL)	25.7°C	24.8°C	24.8°C	24.6°C	24.4°C	25.3°C	24.5°C	24.8°C
19.8	25.4°C	24.5°C	24.8°C	24.9°C	24.5°C	25.2°C	24.5°C	24.9°C
39.6	25.5°C	24.6°C	24.9°C	25.0°C	24.3°C	25.3°C	24.6°C	24.8°C

Measurement taken in test chambers

Temperature *Ceriodaphnia dubia* (°C)

	Tue 3/16/21	Wed 3/17/21	Thu 3/18/21	Fri 3/19/21	Sat 3/20/21	Sun 3/21/21	Mon 3/22/21	Tue 3/23/21
	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:	Analyst:
	CGM	NY	NY	HB	JK	NY	NY	
Test	25.8°C	24.6°C	24.8°C	24.4°C	24.7°C	25.3°C	24.8°C	

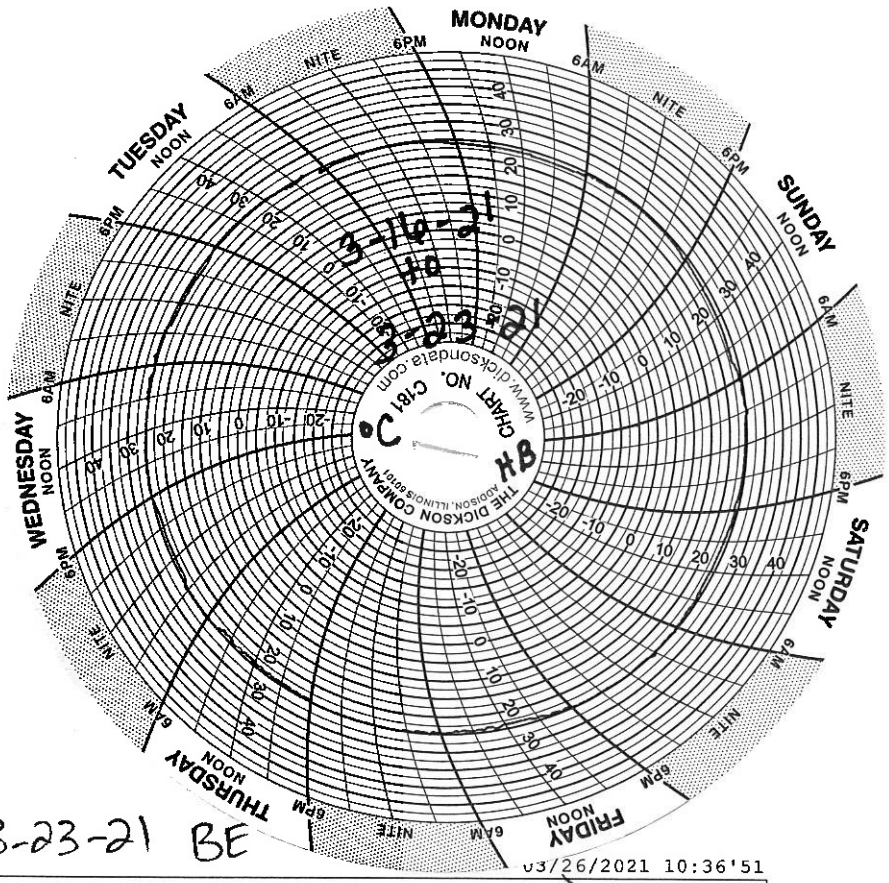
Thermometer serial number: **18050064**

Camden STP, Town of

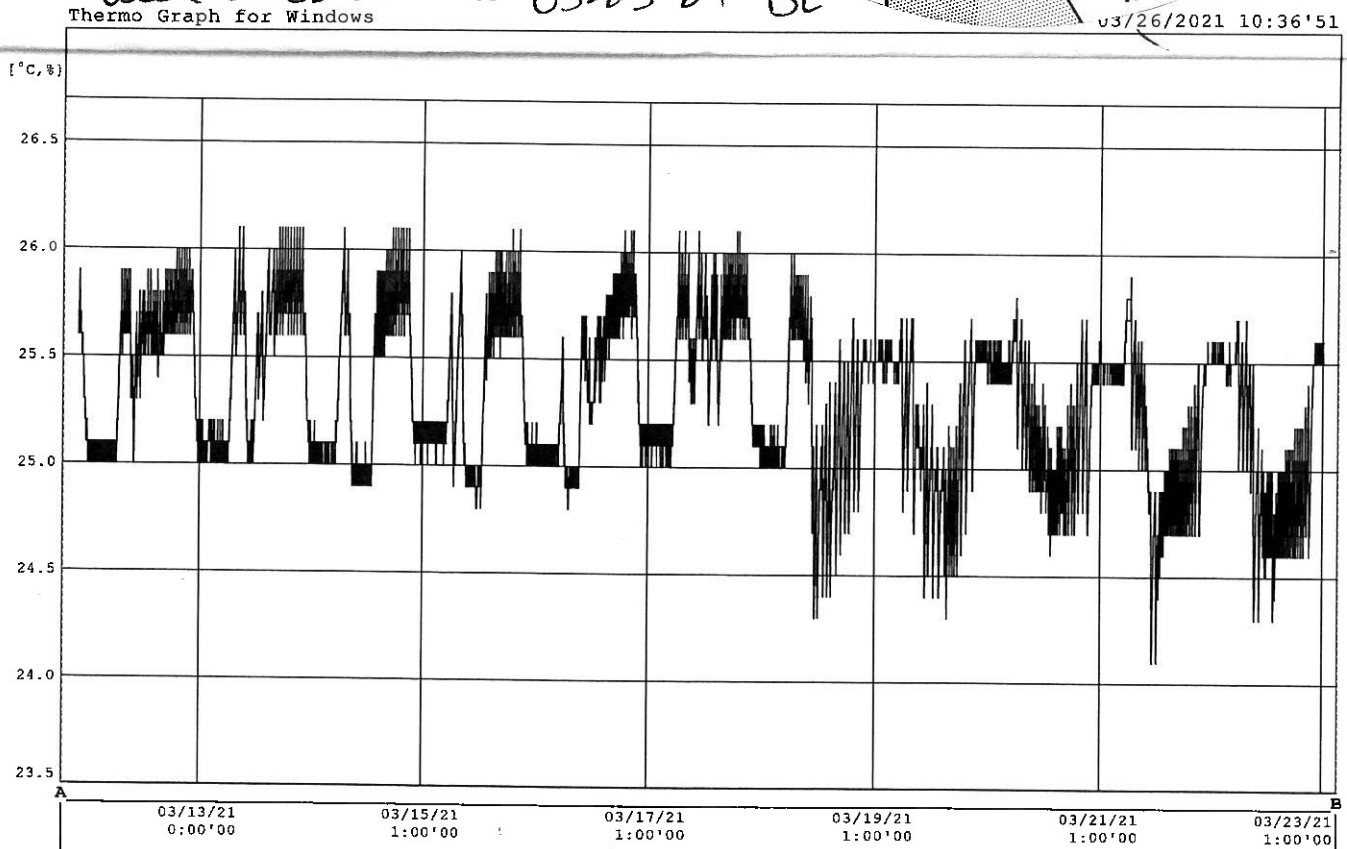
Chart Devices Used in
Thermo-Kool Walk-in Incubator:

Dickson (small chart)

[redacted]



Week of 03-16-21 to 03-23-21 BE



ch	Name	Intvl.	Sample	Cur.A	Cur.B	A<->B	High	Low	Avg.	Unit
1	Ch1	2min.	8000	-----	-----	-----	26.1	24.1	25.3	°C
2	Ch2	2min.	8000	-----	-----	-----	26.1	24.1	25.3	°C

Cur.A Date : 03/11/2021 18:19'52
Cur.B Date : 03/23/2021 4:22'09
diff. A-B : 11 09:02'17.000

Data Range 03/11/2021 18:19'52-03/23/2021 4:22'09
Calc.Range 03/11/2021 21:31'50-03/23/2021 1:10'11

NOTATIONS USED BY ANALYSTS DURING TOXICITY EVALUATIONS

Ceriodaphnia dubia (water flea)

#	numbers on the Reproduction bench sheets (chronic) indicate the number of live young produced
@	if number is circled, this indicates movement of daphnid has become impaired either by actual algal growth on the organisms, or has become entrapped in substances found in the effluent sample, or has been covered in stalked cilia
ME	(molted embryo) often a stressed or poor condition female will abort all or some of a brood in response to a toxin, insufficient nutrition, or just an inability to sustain a certain level of reproduction
P	(pale) this is a noticeable reduction in coloration compared to that which is normal for the individual's age
SS	(small size) this observation is made in comparison to other individuals of the same brood or age group and generally represents a difference of at least 2X size difference
ES	(erratic swimming) this represents a locomotor behavior typified by unsustained swimming with the daphnid periodically "resting" on the bottom of the test vessel; this condition is often observed prior to a daphnid becoming totally immotile
I	(immotility) this denotes a total lack of motility; daphnid is on the bottom of the test vessel and is confirmed as living; daphnids are frequentlydead within a short time
LIT	(lost in transfer) organism was lost during transfer process; stats are adjusted to represent this dilution as having one less organism
NL	(not loaded) organism was not loaded at test intiation; stats are adjusted to represent this dilution having one less organism
NT	(not transferred) organism was not present at the time of the next transfer; stats are adjusted to represent this dilution having one less organism loaded at the initiation of testing
X	(dead) dead daphnid is on bottom of test vessel and is confirmed dead by observation of no appendage movement and no visible heartbeat

Pimephales promelas (fathead minnow)

#	numbers indicate the number of live organisms remaining
BS	(bent spine) fish appear to have a curved spine
LR	(loss of reflex) fish are alive, but slow to react to gentle prodding
NL	(not loaded) organism was not loaded at test initiation; stats are adjusted to represent this dilution having one less organism
TS	(top swimmers) fish appear to congregate only at the surface of the test solution (sometimes attributed to low dissolved oxygen levles)
SS	(small size) this observation is made in comparison to other individuals of the same age group and generally represents a difference of at least 2X size difference

L #: L1327211 -01,-02,-03

Date(s) and Time(s) of Neonate Harvest:	From	16:50	on	3/15/2021	to	23:18	on	3/15/2021		
Neonates were Harvested from the Following Tray(s):	030921AD2	030921AD2	030921AD2	030921AD2	030921AD2	030921AD2	030921T1	030921T1	030921T1	030921T1	Template Name:
Neonates were Harvested from the Following Cups:	E6	G2	G5	I3	I4	J4	D3	D4	D6	E2	**Raven**

Control Water Carboy Used →

Description of Sample Being Analyzed Below: **CONTROL 8 Camden STP, Town of** **TN0064611**

	Set-up & Transfer Data				Identification of Replicate										# of Offspring at Renewal	# of Live Adults at Renewal
	Date	**Time**	**Analyst**		A: 1	B: 5	C: 7	D: 5	E: 4	F: 4	G: 1	H: 5	I: 6	J: 3		
H 3-15	**Tue 3/16/21**	15:33	CGM	initiation	0	0	0	0	0	0	0	0	0	0	0	10
H 3-16	**Wed 3/17/21**	14;07	NY	24 hrs	0	0	0	0	0	0	0	0	0	0	0	10
H 3-17	**Thu 3/18/21**	14:09	JK	48 hrs	0	0	0	0	0	0	0	0	0	0	0	10
H 3-18	**Fri 3/19/21**	15:37	ML	72 hrs	0	0	0	0	3	4	0	0	0	0	7	10
H 3-19	**Sat 3/20/21**	10:41	JK	96 hrs	6	0	6	5	0	0	6	6	6	7	42	10
H 3-19	**Sun 3/21/21**	12:44	CGM	120 hrs	14	11	12	12	13	12	14	13	10	14	125	10
	Mon 3/22/21	14:56	CGM	144 hrs	0	10	0	0	13	16	13	19	11	14	96	10
	Tue 3/23/21			168 hrs											0	
	Wed 3/24/21			192 hrs											0	
	Total # of Young Produced:				20	21	18	17	29	32	33	38	27	35	Total Offspring at Renewal: **270**	Total Young Produced: **270**

C. dubia Cup Batch/Lot: ESC45713 **Algae Lot:** 031321 **YCT Lot:** 022421

Test Acceptability Criteria:

Survival ≥ 80%?		≥ 15 neonates/female?		≥ 60% 3rd brood?		Control Valid?	
YES	NO	YES	NO	YES	NO	YES	NO
X		X		X		X	

Description of Sample Being Analyzed Below: **2.48 Camden STP, Town of** **TN0064611**

Set-up & Transfer Data				Identification of Replicate										# of Offspring at Renewal	# of Live Adults at Renewal
Date	**Time**	**Analyst**		A: 3	B: 4	C: 5	D: 6	E: 3	F: 3	G: 3	H: 2	I: 1	J: 5		
Tue 3/16/21	15:33	CGM	initiation	0	0	0	0	0	0	0	0	0	0	0	10
Wed 3/17/21	14:09	NY	24 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Thu 3/18/21	14:12	JK	48 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Fri 3/19/21	15:37	ML	72 hrs	0	3	0	0	5	3	0	0	0	0	11	10
Sat 3/20/21	10:45	JK	96 hrs	3	0	6	5	0	0	5	5	6	8	38	10
Sun 3/21/21	12:52	CGM	120 hrs	9	14	17	14	13	12	15	13	14	16	137	10
Mon 3/22/21	14:58	CGM	144 hrs	0	19	15	16	15	14	22	0	18	22	141	10
Tue 3/23/21			168 hrs											0	
Wed 3/24/21			192 hrs											0	
Total # of Young Produced:				12	36	38	35	33	29	42	18	38	46	Total Offspring at Renewal: **327**	Total Young Produced: **327**

Comments:

wild organisms in sample 3-20-21 JK

L #: L1327211 -01,-02,-03

Description of Sample Being Analyzed Below:				5			Camden STP, Town of							TN0064611	
Set-up & Transfer Data				Identification of Replicate										# of Offspring at Renewal	# of Live Adults at Renewal
Date	Time	Analyst		A: 4	B: 3	C: 3	D: 1	E: 2	F: 7	G: 6	H: 6	I: 5	J: 7		
Tue 3/16/21	15:33	CGM	initiation	0	0	0	0	0	0	0	0	0	0	0	10
Wed 3/17/21	14:09	NY	24 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Thu 3/18/21	14:14	JK	48 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Fri 3/19/21	15:38	ML	72 hrs	0	0	0	0	5	4	0	0	7	0	16	10
Sat 3/20/21	10:48	JK	96 hrs	7	0	4	6	0	0	5	5	0	8	35	10
Sun 3/21/21	12:56	CGM	120 hrs	15	7	14	13	15	12	12	16	14	17	135	10
Mon 3/22/21	15:01	CGM	144 hrs	0	11	17	0	17	19	18	20	21	0	123	10
Tue 3/23/21			168 hrs											0	
Wed 3/24/21			192 hrs											0	
Total # of Young Produced:				22	18	35	19	37	35	35	41	42	25	Total Offspring at Renewal	Total Young Produced
														309	309

Description of Sample Being Analyzed Below:				9.9(PL)			Camden STP, Town of							TN0064611	
Set-up & Transfer Data				Identification of Replicate										# of Offspring at Renewal	# of Live Adults at Renewal
Date	Time	Analyst		A: 5	B: 7	C: 2	D: 2	E: 5	F: 5	G: 4	H: 3	I: 2	J: 4		
Tue 3/16/21	15:33	CGM	initiation	0	0	0	0	0	0	0	0	0	0	0	10
Wed 3/17/21	14:12	NY	24 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Thu 3/18/21	14:17	JK	48 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Fri 3/19/21	15:38	ML	72 hrs	0	0	0	0	3 X	5	0	0	8	0	16	9
Sat 3/20/21	10:54	JK	96 hrs	5	7	7	5	-	0	8	6	0	8	46	9
Sun 3/21/21	13:00	CGM	120 hrs	17	13	17	13	-	15	17	14	13	9	128	9
Mon 3/22/21	15:04	CGM	144 hrs	4	16	16	0	-	21	23	19	17	18	134	9
Tue 3/23/21			168 hrs					-						0	
Wed 3/24/21			192 hrs					-						0	
Total # of Young Produced:				26	36	40	18	3	41	48	39	38	35	Total Offspring at Renewal	Total Young Produced
														324	324

"X" = indicates dead daphnid; death is confirmed by observation (no appendage movement and no visible heartbeat)

Comments:

Rep A 19.8, neonates very large 3-20-21 JK Rep J 19.8 4th brood on 3/22. 3-24-21 JK

L #: L1327211 -01,-02,-03

Description of Sample Being Analyzed Below:				19.8			Camden STP, Town of							TN0064611	
Set-up & Transfer Data				Identification of Replicate										# of Offspring at Renewal	# of Live Adults at Renewal
Date	Time	Analyst		A: 6	B: 1	C: 4	D: 3	E: 1	F: 1	G: 7	H: 7	I: 7	J: 6		
Tue 3/16/21	15:33	CGM	initiation	0	0	0	0	0	0	0	0	0	0	0	10
Wed 3/17/21	14:15	NY	24 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Thu 3/18/21	14:19	JK	48 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Fri 3/19/21	15:38	ML	72 hrs	2	3	0	0	0	0	0	0	3	3	11	10
Sat 3/20/21	10:59	JK	96 hrs	4	0	8	7	6	5	6	6	0	9	51	10
Sun 3/21/21	13:03	CGM	120 hrs	16	13	15	14	13	10	12	15	17	15	140	10
Mon 3/22/21	15:07	CGM	144 hrs	0	18	18	22	20	15	16	21	23	[20]	153	10
Tue 3/23/21			168 hrs											0	
Wed 3/24/21			192 hrs											0	
Total # of Young Produced:				22	34	41	43	39	30	34	42	43	27	Total Offspring at Renewal	Total Young Produced
														355	355

Description of Sample Being Analyzed Below:				39.6			Camden STP, Town of							TN0064611	
Set-up & Transfer Data				Identification of Replicate										# of Offspring at Renewal	# of Live Adults at Renewal
Date	Time	Analyst		A: 7	B: 6	C: 6	D: 4	E: 6	F: 6	G: 2	H: 1	I: 3	J: 1		
Tue 3/16/21	15:33	CGM	initiation	0	0	0	0	0	0	0	0	0	0	0	10
Wed 3/17/21	14:16	NY	24 hrs	0	0	0	0	0	0	0	0	0	0	0	10
Thu 3/18/21	14:21	JK	48 hrs	0	0 X	0	0	0	0	0	0	0	0	0	9
Fri 3/19/21	15:38	ML	72 hrs	0	-	3	0	0	4	0	0	5	0	12	9
Sat 3/20/21	11:07	JK	96 hrs	7	-	0	8	0	0	6	8	0	7	36	9
Sun 3/21/21	13:07	CGM	120 hrs	14	-	15	15	8	10	8	16	16	17	119	9
Mon 3/22/21	15:10	CGM	144 hrs	0	-	17	18	9	19	12	21	21	19	136	9
Tue 3/23/21			168 hrs		-									0	
Wed 3/24/21			192 hrs		-									0	
Total # of Young Produced:				21	0	35	41	17	33	26	45	42	43	Total Offspring at Renewal	Total Young Produced
														303	303

"X" = indicates dead daphnid; death is confirmed by observation (no appendage movement and no visible heartbeat)

Comments:

CETIS Summary Report

Ceriodaphnia 7-d Survival and Reproduction Test — **Pace National**

Batch ID:	02-5812-0171	**Test Type:**	Reproduction-Survival (7d)	**Analyst:**	Josh Kryger
Start Date:	16 Mar-21	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water
Ending Date:	22 Mar-21	**Species:**	Ceriodaphnia dubia	**Brine:**	
Test Length:	6d 0h	**Taxon:**	Branchiopoda	**Source:**	In-House Culture **Age:** <24

Sample ID:	14-3093-3173	**Code:**	554A4EB5	**Project:**	
Sample Date:	16 Mar-21 09:25	**Material:**	POTW Effluent	**Source:**	
Receipt Date:	16 Mar-21 13:30	**CAS (PC):**		**Station:**	
Sample Age:	n/a	**Client:**	Camden STP		

Comments:
Camden STP (TN0064611) L1327211 -01, -02, -03

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
10-3587-3131	Reproduction	Dunnett Multiple Comparison Test		39.6	>39.6	n/a	2.525	40.5%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
01-1473-6361	7d Survival Rate	Linear Interpolation (ICPIN)	✓	LC5	19.8	6.838	n/a	5.051	1
			✓	LC10	39.6	8.675	n/a	2.525	
			✓	LC15	>39.6	n/a	n/a	<2.525	
			✓	LC20	>39.6	n/a	n/a	<2.525	
			✓	LC25	>39.6	n/a	n/a	<2.525	
			✓	LC40	>39.6	n/a	n/a	<2.525	
			✓	LC50	>39.6	n/a	n/a	<2.525	
11-1753-4397	Reproduction	Linear Interpolation (ICPIN)		IC5	>39.6	n/a	n/a	<2.525	1
			✓	IC10	>39.6	n/a	n/a	<2.525	
			✓	IC15	>39.6	n/a	n/a	<2.525	
			✓	IC20	>39.6	n/a	n/a	<2.525	
			✓	IC25	>39.6	n/a	n/a	<2.525	
			✓	IC40	>39.6	n/a	n/a	<2.525	
			✓	IC50	>39.6	n/a	n/a	<2.525	

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
01-1473-6361	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
10-3587-3131	Reproduction	Control Resp	27	15	>>	Yes	Passes Criteria
11-1753-4397	Reproduction	Control Resp	27	15	>>	Yes	Passes Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
2.48		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
9.9		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%
19.8		10	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
39.6		10	0.9000	0.6738	1.0000	0.0000	1.0000	0.1000	0.3162	35.14%	10.00%

Reproduction Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	10	27	21.58	32.42	17	38	2.394	7.572	28.04%	0.00%
2.48		10	32.7	25.18	40.22	12	46	3.323	10.51	32.14%	-21.11%
5		10	30.9	24.44	37.36	18	42	2.858	9.036	29.24%	-14.44%
9.9		10	32.4	22.91	41.89	3	48	4.193	13.26	40.93%	-20.00%
19.8		10	35.5	30.24	40.76	22	43	2.325	7.352	20.71%	-31.48%
39.6		10	30.3	20.02	40.58	0	45	4.544	14.37	47.42%	-12.22%

Ceriodaphnia 7-d Survival and Reproduction Test — **Pace National**

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2.48		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9.9		1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19.8		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39.6		1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Reproduction Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10
0	D	20	21	18	17	29	32	33	38	27	35
2.48		12	36	38	35	33	29	42	18	38	46
5		22	18	35	19	37	35	35	41	42	25
9.9		26	36	40	18	3	41	48	39	38	35
19.8		22	34	41	43	39	30	34	42	43	27
39.6		21	0	35	41	17	33	26	45	42	43

TOXICITY TEST DATA SHEET - *Pimephales promelas* (fathead minnow) 7-Day Survival & Weight Data

Camden STP, Town of | **Test Date:** March 16-23, 2021 | **NPDES #:** TN0064611

NUMBER OF SURVIVORS

Sample Distribution		Sample #1 Tues/Wed		Sample #2 Thurs/Fri		Sample #3 Sat/Sun/Mon			
Day of the Week and Date		Tue 3/16/21	Wed 3/17/21	Thu 3/18/21	Fri 3/19/21	Sat 3/20/21	Sun 3/21/21	Mon 3/22/21	Tue 3/23/21
Effluent Conc. In%	ID of Rep.	0 hours	24 hours	48 hours	72 hours	96 hours	120 hours	144 hours	168 hours
Control 8	A: 1	10	10	10	10	10	10	10	10
	B: 2	10	10	10	10	10	10	10	10
	C: 3	10	10	10	10	10	10	10	10
	D: 4	10	10	10	10	10	10	10	10
2.48	A: 2	10	10	10	10	10	10	10	10
	B: 6	10	10	10	10	10	10	10	10
	C: 4	10	10	10	10	10	10	10	10
	D: 6	10	10	10	10	10	10	10	10
5	A: 3	10	10	10	9	9	9	9	9
	B: 4	10	10	10	10	10	10	10	10
	C: 6	10	10	9	9	9	9	9	9
	D: 5	10	10	10	10	10	9	9	7
9.9(PL)	A: 4	10	10	10	10	10	10	10	10
	B: 1	10	10	10	10	10	10	10	10
	C: 6	10	10	10	10	10	10	10	8
	D: 1	10	10	10	9	8	8	7	6
19.8	A: 5	10	10	10	10	10	10	10	9
	B: 3	10	9	9	9	9	9	9	9 (1SS)
	C: 2	10	10	10	10	10	10	9	9
	D: 2	10	10	10	8	4	3	3	3
39.6	A: 6	10	10	10	10	10	10	10	7
	B: 5	10	10	10	10	10	10	10	10
	C: 1	10	10	10	10	9	9	9	9
	D: 3	10	10	10	10	10	10	10	9 (1SS)
Initials of Analyst Checking Survival		MP/CM	JK	JK	ML	NY	EN	ML	HB
Time that Minnows were Examined:		15:40	14:10	14:00	15:33	10:41	12:02	11:58 AM	11:49
Carboy used to dilute sample:		H 3-15	H 3-16	H 3-17	H 3-18	H 3-19	H 3-19	M 3-16	

Fish Cup Batch/Lot: 21C01916 | **Brine Shrimp Lot:** 8313419

COMMENTS: Minnows used in this test are from ESC Lot# **031521HD** Minnows were hatched on **3/15/2021**

WEIGHT DATA for SURVIVING MINNOWS

		Weight Empty Boat (mg)	Boat w/ Fish (mg)	Weight of Larvae (mg)	Mean Weight of Larvae (mg)	Total of Mean	Mean per Concentration
Control	A	1258.89	1265.07	6.18	0.618	2.2140	0.5535
	B	1265.43	1271.7	6.27	0.627		
	C	1280.98	1286.53	5.55	0.555		
	D	1272.71	1276.85	4.14	0.414		
2.48	A	1272.43	1278	5.57	0.557	2.1280	0.5320
	B	1274.3	1279.32	5.02	0.502		
	C	1261.3	1266.68	5.38	0.538		
	D	1280.81	1286.12	5.31	0.531		
5	A	1263.74	1269.11	5.37	0.537	2.0030	0.5007
	B	1273.85	1279.25	5.4	0.54		
	C	1277.01	1282.61	5.6	0.56		
	D	1261.9	1265.56	3.66	0.366		
9.9(PL)	A	1270.2	1275.56	5.36	0.536	1.8930	0.4733
	B	1265.49	1271.17	5.68	0.568		
	C	1261.3	1265.51	4.21	0.421		
	D	1275.61	1279.29	3.68	0.368		
19.8	A	1274.98	1279.48	4.5	0.45	1.6790	0.4198
	B	1262.21	1267.43	5.22	0.522		
	C	1265.38	1270.65	5.27	0.527		
	D	1264.09	1265.89	1.8	0.18		
39.6	A	1263.61	1267.04	3.43	0.343	1.8550	0.4638
	B	1271.6	1276.84	5.24	0.524		
	C	1274.1	1279.49	5.39	0.539		
	D	1274.82	1279.31	4.49	0.449		
Analyst:		ny	MP				

Date & Time Put in Oven	Date & Time Removed
3-23-21 @ 11:50	3-25-21 @ 09:15

Oven Temp:	68°C	Oven Temp:	73°C
Analyst:	HB	Analyst:	MP

Survival ≥ 80%?		≥ 0.25mg Average Weight in Surviving Controls?		Control Valid?	
YES	NO	YES	NO	YES	NO
X		X		X	

Login #: L1327211 -01,-02,-03

Fathead Minnow 7-d Larval Survival and Growth Test — **Pace National**

Batch ID:	04-5279-5462	**Test Type:**	Growth-Survival (7d)	**Analyst:**	Josh Kryger		
Start Date:	16 Mar-21	**Protocol:**	EPA/821/R-02-013 (2002)	**Diluent:**	Mod-Hard Synthetic Water		
Ending Date:	23 Mar-21	**Species:**	Pimephales promelas	**Brine:**			
Test Length:	7d 0h	**Taxon:**	Actinopterygii	**Source:**	Aquatox, AR	**Age:**	<24

Sample ID:	14-6559-9570	**Code:**	575B4652	**Project:**	
Sample Date:	16 Mar-21 09:25	**Material:**	POTW Effluent	**Source:**	
Receipt Date:	16 Mar-21 13:30	**CAS (PC):**		**Station:**	
Sample Age:	n/a	**Client:**	Camden STP		

Comments:
Camden STP (TN0064611) L1327211 -01, -02, -03

Multiple Comparison Summary

Analysis ID	Endpoint	Comparison Method	✓	NOEL	LOEL	TOEL	TU	PMSD	S
06-9218-1407	Mean Dry Biomass-mg	Dunnett Multiple Comparison Test		39.6	>39.6	n/a	2.525	31.3%	1

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓	Level	%	95% LCL	95% UCL	TU	S
14-1191-7756	7d Survival Rate	Linear Interpolation (ICPIN)		LC5	3.488	2.883	13.75	28.67	1
			✓	LC10	4.496	3.286	n/a	22.24	
			✓	LC15	9.9	1.052	n/a	10.1	
				LC20	>39.6	n/a	n/a	<2.525	
			✓	LC25	>39.6	n/a	n/a	<2.525	
			✓	LC40	>39.6	n/a	n/a	<2.525	
			✓	LC50	>39.6	n/a	n/a	<2.525	
15-9124-6909	Mean Dry Biomass-mg	Linear Interpolation (ICPIN)	✓	IC5	2.978	n/a	30.54	33.58	1
				IC10	5.464	n/a	n/a	18.3	
				IC15	10.77	n/a	n/a	9.281	
			✓	IC20	19.47	n/a	n/a	5.136	
			✓	IC25	>39.6	n/a	n/a	<2.525	
			✓	IC40	>39.6	n/a	n/a	<2.525	
			✓	IC50	>39.6	n/a	n/a	<2.525	

Test Acceptability

				TAC Limits			
Analysis ID	Endpoint	Attribute	Test Stat	Lower	Upper	Overlap	Decision
14-1191-7756	7d Survival Rate	Control Resp	1	0.8	>>	Yes	Passes Criteria
06-9218-1407	Mean Dry Biomass-mg	Control Resp	0.5535	0.25	>>	Yes	Passes Criteria
15-9124-6909	Mean Dry Biomass-mg	Control Resp	0.5535	0.25	>>	Yes	Passes Criteria

7d Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
2.48		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
5		4	0.8750	0.6748	1.0000	0.7000	1.0000	0.0629	0.1258	14.38%	12.50%
9.9		4	0.8500	0.5453	1.0000	0.6000	1.0000	0.0957	0.1915	22.53%	15.00%
19.8		4	0.7500	0.2726	1.0000	0.3000	0.9000	0.1500	0.3000	40.00%	25.00%
39.6		4	0.8750	0.6748	1.0000	0.7000	1.0000	0.0629	0.1258	14.38%	12.50%

Mean Dry Biomass-mg Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	D	4	0.5535	0.397	0.71	0.414	0.627	0.04918	0.09836	17.77%	0.00%
2.48		4	0.532	0.4957	0.5683	0.502	0.557	0.01141	0.02282	4.29%	3.88%
5		4	0.5008	0.3569	0.6446	0.366	0.56	0.0452	0.09041	18.05%	9.53%
9.9		4	0.4733	0.3231	0.6234	0.368	0.568	0.04719	0.09438	19.94%	14.50%
19.8		4	0.4198	0.1593	0.6802	0.18	0.527	0.08183	0.1637	38.99%	24.16%
39.6		4	0.4638	0.3212	0.6063	0.343	0.539	0.0448	0.08961	19.32%	16.21%

Fathead Minnow 7-d Larval Survival and Growth Test — Pace National

7d Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	1.0000	1.0000	1.0000	1.0000
2.48		1.0000	1.0000	1.0000	1.0000
5		0.9000	1.0000	0.9000	0.7000
9.9		1.0000	1.0000	0.8000	0.6000
19.8		0.9000	0.9000	0.9000	0.3000
39.6		0.7000	1.0000	0.9000	0.9000

Mean Dry Biomass-mg Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	D	0.618	0.627	0.555	0.414
2.48		0.557	0.502	0.538	0.531
5		0.537	0.54	0.56	0.366
9.9		0.536	0.568	0.421	0.368
19.8		0.45	0.522	0.527	0.18
39.6		0.343	0.524	0.539	0.449

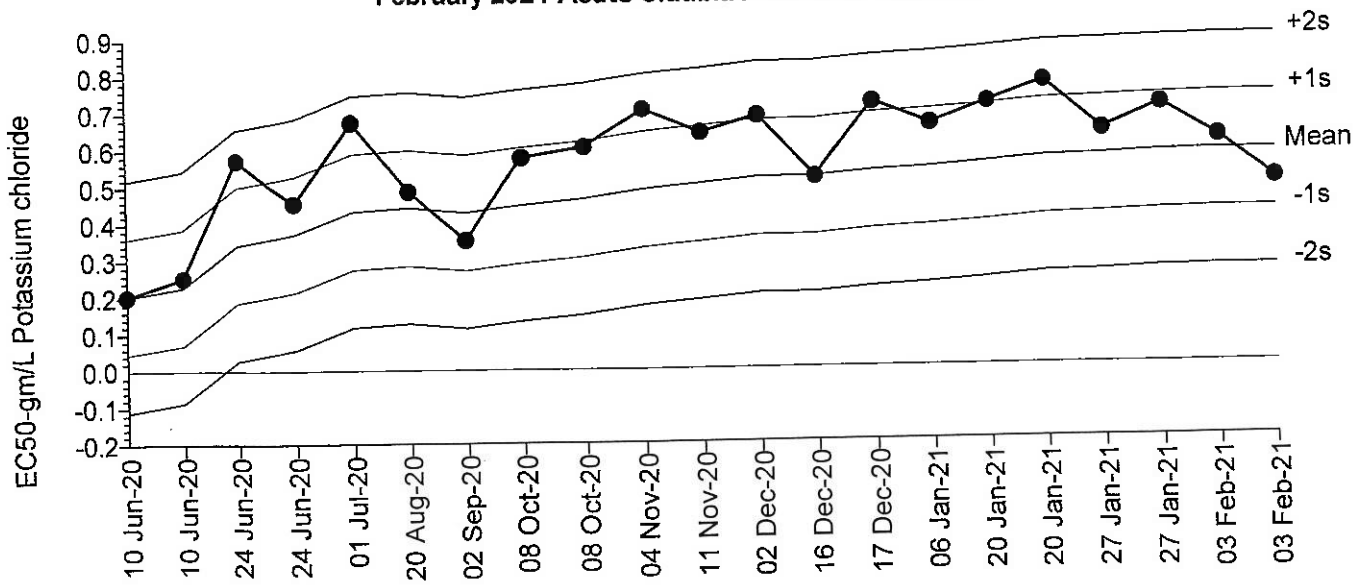
February 2021 Acute C.dubia Reference Toxicant

Pace National

Test Type: Survival (48h) **Organism:** Ceriodaphnia dubia (Water Flea) **Material:** Potassium chloride

Protocol: EPA/821/R-02-012 (2002) **Endpoint:** 48h Survival Rate **Source:** Reference Toxicant-REF

February 2021 Acute C.dubia Reference Toxicant



Mean:	0.5783	**Count:**	20	**-1s Warning Limit:**	0.4209	**-2s Action Limit:**	0.2635
Sigma:	0.1574	**CV:**	27.20%	**+1s Warning Limit:**	0.7357	**+2s Action Limit:**	0.8931

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2020	Jun	10	0:00	0.2031	-0.3752	-2.384	(-)	(-)	10-3141-7583	08-2554-8215
2			10	0:00	0.2532	-0.3251	-2.065	(-)	(-)	13-6378-7279	11-7507-7296
3			24	0:00	0.5743	-0.003951	-0.0251			16-0405-7726	19-5971-9549
4			24	0:00	0.4564	-0.1219	-0.7744			19-7859-7035	03-0608-7426
5		Jul	1	0:00	0.676	0.09769	0.6206			20-9293-3459	21-3792-9091
6		Aug	20	0:00	0.4868	-0.09145	-0.581			09-3794-0288	00-0272-6638
7		Sep	2	0:00	0.3536	-0.2247	-1.428	(-)		12-5850-1048	16-1972-9343
8		Oct	8	0:00	0.5771	-0.001199	-0.007616			03-8856-0707	08-8444-3745
9			8	0:00	0.6057	0.02742	0.1742			05-1483-4307	04-6560-7517
10		Nov	4	0:00	0.7071	0.1288	0.8183			14-3496-1677	03-5528-4530
11			11	0:00	0.6421	0.06375	0.405			13-0238-3030	05-8801-4063
12		Dec	2	0:00	0.6864	0.1081	0.6866			13-6825-2339	19-9694-2619
13			16	0:00	0.5176	-0.06067	-0.3854			02-6471-2043	04-8010-8326
14			17	0:00	0.7201	0.1418	0.901			20-9915-3368	12-2449-4946
15	2021	Jan	6	0:00	0.6598	0.08145	0.5175			07-2005-1703	01-6777-0104
16			20	0:00	0.7159	0.1376	0.8743			10-2213-0054	03-4305-8211
17			20	0:00	0.7711	0.1928	1.225	(+)		12-9575-5414	02-6309-9786
18			27	0:00	0.6373	0.05898	0.3747			01-0330-6032	20-5728-1326
19			27	0:00	0.7071	0.1288	0.8183			00-7042-2105	16-7544-1890
20		Feb	3	0:00	0.6156	0.03727	0.2368			00-2176-0237	08-9882-7317
21			3	0:00	0.5	-0.0783	-0.4975			15-3863-0925	14-3861-7721

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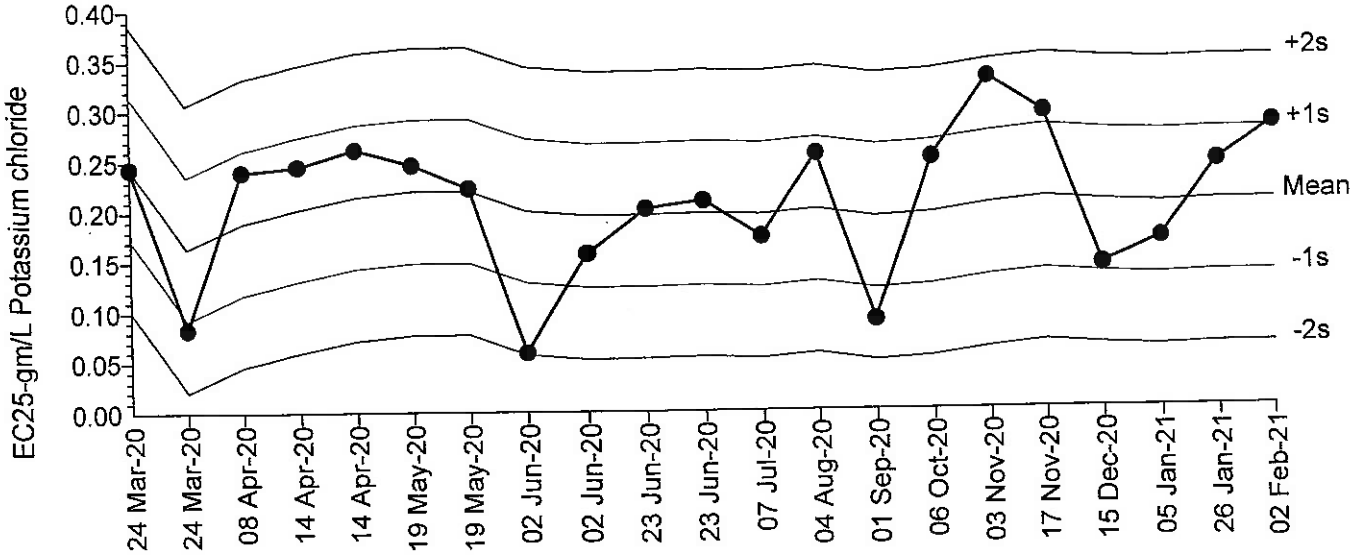
February 2021
Reference Toxicant Test

February 2021 Chronic C. dubia Reference Toxicant

Pace National

Test Type:	Reproduction-Survival (7d)	**Organism:**	Ceriodaphnia dubia (Water Flea)	**Material:**	Potassium chloride
Protocol:	EPA/821/R-02-013 (2002)	**Endpoint:**	Reproduction	**Source:**	Reference Toxicant-REF

February 2021 Chronic C. dubia Reference Toxicant



Mean:	0.2058	**Count:**	20	**-1s Warning Limit:**	0.1343	**-2s Action Limit:**	0.06273
Sigma:	0.07155	**CV:**	34.80%	**+1s Warning Limit:**	0.2774	**+2s Action Limit:**	0.3489

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2020	Mar	24	0:00	0.2436	0.03777	0.5279			02-5372-4816	09-9710-1090
2			24	1:00	0.0828	-0.123	-1.719	(-)		04-6395-7779	14-4083-9004
3		Apr	8	0:00	0.2393	0.03353	0.4687			01-6061-1441	19-2174-4153
4			14	0:00	0.2448	0.03899	0.545			03-0255-9407	13-2594-1820
5			14	0:00	0.2615	0.05566	0.7779			11-5804-3384	02-6596-5307
6		May	19	8:00	0.246	0.04022	0.5621			01-0989-9664	13-6164-2076
7			19	8:00	0.2228	0.01696	0.237			20-5493-2952	05-5344-5506
8		Jun	2	0:00	0.05894	-0.1469	-2.052	(-)	(-)	18-8015-4311	12-1465-9035
9			2	8:00	0.1573	-0.04851	-0.678			09-4841-7512	18-3577-7767
10			23	0:00	0.2019	-0.003928	-0.0549			04-5888-7936	17-2221-3436
11			23	0:00	0.2093	0.003514	0.04911			09-2785-4037	00-6950-0409
12		Jul	7	0:00	0.1733	-0.03252	-0.4546			19-8019-1066	15-4428-5984
13		Aug	4	0:00	0.2552	0.04939	0.6902			20-4977-1582	09-7724-0377
14		Sep	1	0:00	0.08948	-0.1163	-1.626	(-)		09-5123-3515	17-2277-3441
15		Oct	6	0:00	0.2503	0.04453	0.6223			03-3646-4036	15-8198-5987
16		Nov	3	0:00	0.3298	0.124	1.732	(+)		10-3698-9858	04-9602-1110
17			17	0:00	0.2947	0.08889	1.242	(+)		02-4196-9670	19-6665-5042
18		Dec	15	0:00	0.1427	-0.06306	-0.8813			19-2527-0884	15-8013-2117
19	2021	Jan	5	0:00	0.1685	-0.03725	-0.5206			06-4578-8774	21-2073-0285
20			26	0:00	0.2444	0.0386	0.5395			19-5629-6226	01-9271-7012
21		Feb	2	0:00	0.2816	0.07585	1.06	(+)		09-2062-1182	01-9691-9547

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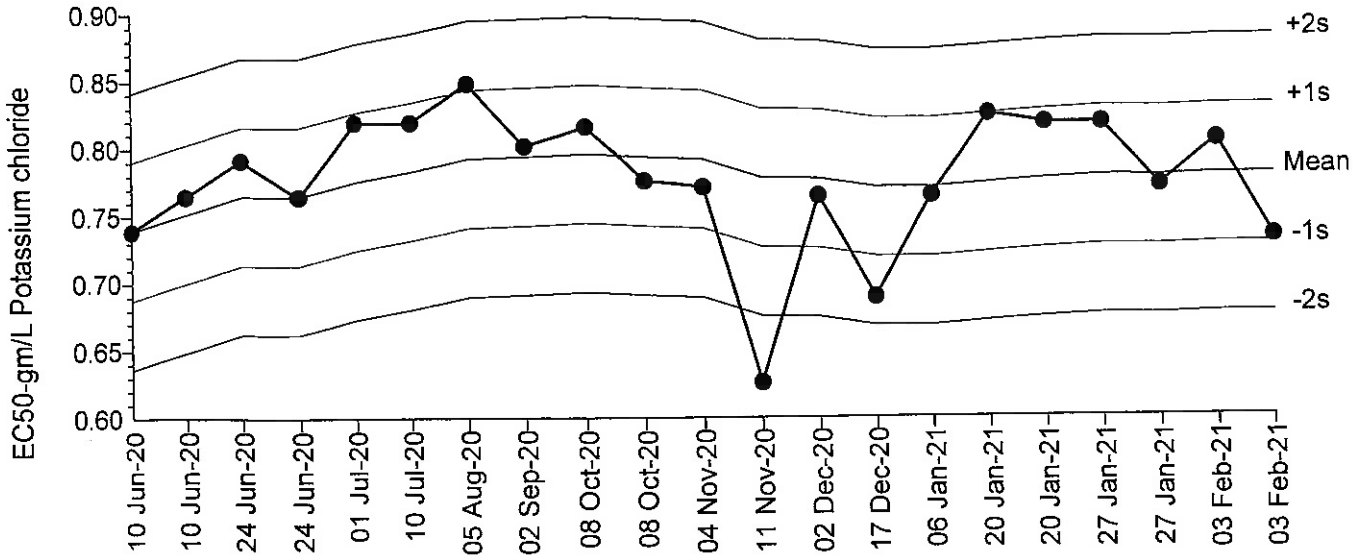
February 2021
Reference Toxicant Test

February 2021 Acute Minnow Reference Toxicant Pace National

Test Type: Survival (48h) **Organism:** Pimephales promelas (Fathead Minn **Material:** Potassium chloride
Protocol: EPA/821/R-02-012 (2002) **Endpoint:** 48h Survival Rate **Source:** Reference Toxicant-REF

February 2021 Acute Minnow Reference Toxicant



Mean:	0.7798	**Count:**	20	**-1s Warning Limit:** 0.7285	**-2s Action Limit:** 0.6772
Sigma:	0.05133	**CV:**	6.58%	**+1s Warning Limit:** 0.8312	**+2s Action Limit:** 0.8825

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2020	Jun	10	0:00	0.7387	-0.04111	-0.801			06-0929-8685	07-7030-5010
2			10	0:00	0.7647	-0.01506	-0.2935			02-2406-5395	13-5364-8413
3			24	0:00	0.7917	0.0119	0.2319			07-1888-6569	16-8990-0935
4			24	0:00	0.7647	-0.01506	-0.2935			04-4602-5061	09-7901-1936
5		Jul	1	0:00	0.8196	0.03982	0.7758			15-0687-1050	05-4556-2453
6			10	0:00	0.8196	0.03982	0.7758			07-6988-0599	18-1721-8256
7		Aug	5	0:00	0.8485	0.06873	1.339	(+)		04-6782-5235	02-8877-2101
8		Sep	2	0:00	0.8018	0.02196	0.4278			15-4423-1757	05-9738-2501
9		Oct	8	0:00	0.8165	0.03667	0.7145			01-5771-7369	13-3072-1807
10			8	0:00	0.7764	-0.003423	-0.06669			20-5625-6587	19-4753-7144
11		Nov	4	0:00	0.7715	-0.008278	-0.1613			19-1972-1605	07-1299-2218
12			11	0:00	0.6261	-0.1537	-2.994	(-)	(-)	14-6214-9229	18-8013-8983
13		Dec	2	0:00	0.7647	-0.01506	-0.2935			12-2740-4412	02-0759-5730
14			17	0:00	0.6892	-0.09058	-1.765	(-)		05-7359-9275	05-0307-0465
15	2021	Jan	6	0:00	0.7647	-0.01506	-0.2935			20-2066-3549	06-4909-4618
16			20	0:00	0.825	0.04522	0.8809			10-5590-1138	12-2130-6321
17			20	0:00	0.8181	0.03833	0.7467			08-4501-6211	10-1734-0569
18			27	0:00	0.8181	0.03833	0.7467			08-5059-0989	19-7465-0497
19			27	0:00	0.7715	-0.008278	-0.1613			18-5417-8102	18-3430-1628
20		Feb	3	0:00	0.8051	0.02532	0.4933			03-3038-4371	20-4618-2570
21			3	0:00	0.7333	-0.04648	-0.9056			07-4702-3693	20-7316-9118

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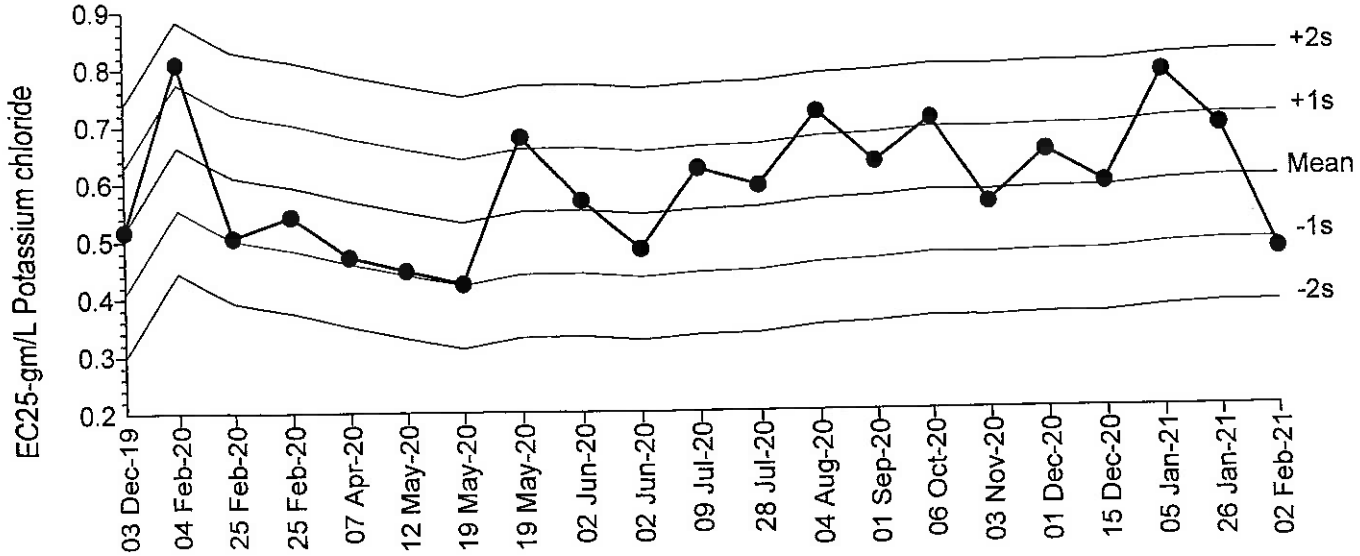
February 2021
Reference Toxicant Test

February 2021 Chronic Minnow Reference Toxicant

Pace National

Test Type: Growth-Survival (7d) **Organism:** Pimephales promelas (Fathead Minn **Material:** Potassium chloride
Protocol: EPA/821/R-02-013 (2002) **Endpoint:** Mean Dry Biomass-mg **Source:** Reference Toxicant-REF

February 2021 Chronic Minnow Reference Toxicant



Mean:	0.5994	**Count:**	20	**-1s Warning Limit:**	0.4898	**-2s Action Limit:**	0.3802
Sigma:	0.1096	**CV:**	18.30%	**+1s Warning Limit:**	0.709	**+2s Action Limit:**	0.8186

Quality Control Data

Point	Year	Month	Day	Time	QC Data	Delta	Sigma	Warning	Action	Test ID	Analysis ID
1	2019	Dec	3	0:00	0.5172	-0.08215	-0.7496			03-4761-2083	10-5009-2407
2	2020	Feb	4	0:00	0.8086	0.2092	1.908	(+)		00-8427-9589	03-5320-6511
3			25	0:00	0.5051	-0.0943	-0.8604			15-2106-1213	18-1044-2549
4			25	0:00	0.5425	-0.05694	-0.5195			04-1482-4189	10-0686-8154
5		Apr	7	0:00	0.4709	-0.1285	-1.172	(-)		09-5981-9551	08-6937-2489
6		May	12	0:00	0.4465	-0.1529	-1.395	(-)		13-2785-6185	20-9101-5484
7			19	0:00	0.4236	-0.1758	-1.604	(-)		04-3275-4780	12-8829-7113
8			19	0:00	0.6784	0.07896	0.7204			10-2146-9701	10-0066-4397
9		Jun	2	0:00	0.568	-0.03138	-0.2863			15-5671-6862	13-7253-4770
10			2	0:00	0.4836	-0.1158	-1.057	(-)		15-7816-4643	18-3630-3232
11		Jul	9	0:00	0.6225	0.02313	0.211			18-7942-1976	04-2049-7238
12			28	0:00	0.5919	-0.007533	-0.06873			00-8119-0585	09-6336-1316
13		Aug	4	0:00	0.7196	0.1202	1.097	(+)		10-3559-2756	04-6010-5796
14		Sep	1	0:00	0.6319	0.03249	0.2964			16-9317-2784	11-9142-0771
15		Oct	6	0:00	0.7063	0.1069	0.975			19-4613-1290	07-2616-1259
16		Nov	3	0:00	0.5584	-0.04102	-0.3743			13-1569-3588	17-1618-9501
17		Dec	1	0:00	0.6478	0.04839	0.4415			15-8332-1340	05-6240-5700
18			15	0:00	0.5913	-0.008052	-0.07347			05-4656-8971	13-2502-0305
19	2021	Jan	5	0:00	0.7843	0.1849	1.687	(+)		17-6414-7461	11-3112-5982
20			26	0:00	0.69	0.09062	0.8268			01-8525-3287	11-2080-8220
21		Feb	2	0:00	0.4729	-0.1265	-1.154	(-)		03-3817-1494	18-9606-2249

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February 2021
Reference Toxicant Test

Company Name/Address:
City of Camden
PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Pres Chk

Report to: **David Tuck**

Email To: **cityofcamden2@bellsouth.net**

Project Description: **Camden Biomonitoring**

City/State Collected:

Please Circle: PT MT CT ET

Phone: **731-584-7986**

Client Project #

Lab Project # **CAMD02-BIOMON**

Collected by (print): Bill Cooper

Site/Facility ID # **TN0064611**

P.O. #

Collected by (signature): Bill Cooper

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARDMETALS 250mlHDPE-HNO3							Remarks	Sample # (lab only)
SAMPLE 1	C	WW		3-15 3-16	1030 925	3	X	X	X								-01

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:Sample 1: Collect 24-hr composite sample from Monday-Tuesday, ESC field tech will deliver to lab on Tuesday.

pH 6.61 Temp 15.7

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # DROP OFF

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Bill Cooper	3-16-21	1250	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			A. Holden

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp 0.2 °C Bottles Received: 3

0270202

Date: 3/16/21 Time: 1:30

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Chain of Custody Page ___ of ___

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Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # U327211
D172

Tab

Acctnum: **CAMD02**
Template: **T45463**
Prelogin: **P834565**
PM: **530 - Rodney Shinbaum**
PB: 76 3-15-21
Shipped Via: **Field Tech**

Company Name/Address:
City of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Pres Chk

Report to: **David Tuck**

Email To: **cityofcamden2@bellsouth.net**

Project Description: **Camden Biomonitoring**

City/State Collected:

Please Circle: PT MT CT ET

Phone: **731-584-7986**

Client Project #

Lab Project # **CAMD02-BIOMON**

Collected by (print): Bill Cooper

Site/Facility ID # **TN0064611**

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARDMETALS 250mlHDPE-HNO3							Remarks	Sample # (lab only)
									+2								
SAMPLE 2	C	WW		3-16-21	0900	3	X	X	X								-02

Chain of Custody Page ___ of ___

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SDG # 132721
1225

Acctnum: **CAMD02**
Template: **T45468**
Prelogin: **P834566**
PM: **530 - Rodney Shinbaum**
PB: JB 3-15-21
Shipped Via: **Field Tech**

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:Sample 2: Collect 24-hr composite sample from Tuesday-Wednesday, ESC field tech will deliver to lab on Wednesday.

pH 6.69 Temp 15.4

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # No track

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y ___ N
COC Signed/Accurate:		Y ___ N
Bottles arrive intact:		Y ___ N
Correct bottles used:		Y ___ N
Sufficient volume sent:		Y ___ N
If Applicable		
VOA Zero Headspace:		Y ___ N
Preservation Correct/Checked:		Y ___ N
RAD Screen <0.5 mR/hr:		Y ___ N

	Date:	Time:			
Relinquished by : (Signature)	3-17-21	1240	Received by: (Signature)	Trip Blank Received: Yes (No) HCL / MeoH TBR	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.7°C Bottles Received: 3	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Caleb Compton	Date: 3/17/21 Time: 1240	Hold: / Condition: NCF / OK

Company Name/Address:
City of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Pres Chk

Report to:
David Tuck

Email To: **cityofcamden2@bellsouth.net**

Project Description:
Camden Biomonitoring

City/State Collected:

Please Circle: PT MT CT ET

Phone: **731-584-7986**

Client Project #

Lab Project #
CAMD02-BIOMON

Collected by (print):
T Stinson

Site/Facility ID #
TN0064611

P.O. #

Collected by (signature):
Thomas Stinson

Immediately Packed on Ice N ___ Y X

Rush? **(Lab MUST Be Notified)**
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARDMETALS 250mlHDPE-HNO3	12									Remarks	Sample # (lab only)
SAMPLE 3	C	WW		3-18 3-19	0940 1020	3	X	X	X											-03-ot
																				BE Pace
																				6-10-21

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Road Mt Juliet, TN 37122
Phone: 615-758-5858 AR: 800-767-5859
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1327211
H107

Acctnum: CAMD02
Template: T45469
Prelogin: P834567
PM: 530 - Rodney Shinbaum
PB: TB 3-15-21

Shipped Via: Field Tech

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Sample 3: Collect 24-hr composite sample from Thursday-Friday, ESC field tech will deliver to lab on Friday

pH 8.16 Temp 11.1

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier C

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Thomas Stinson	3-19-21	1349	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)
			Mappas

Trip Blank Received: Yes (No) HCL / MeoH TBR

Temp: 4.8 °C Bottles Received: 3

Date: 3-19-21 Time: 1349

If preservation required by Login: Date/Time

Hold: Condition: NCF / (OK)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

December 31, 2020

City of Camden

Sample Delivery Group:	L1296770
Samples Received:	12/15/2020
Project Number:	
Description:	Camden Biomonitoring
Site:	TN0064611
Report To:	David Tuck PO Box 779 Camden, TN 38320-0779

Entire Report Reviewed By:

Rodney Shinbaum
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

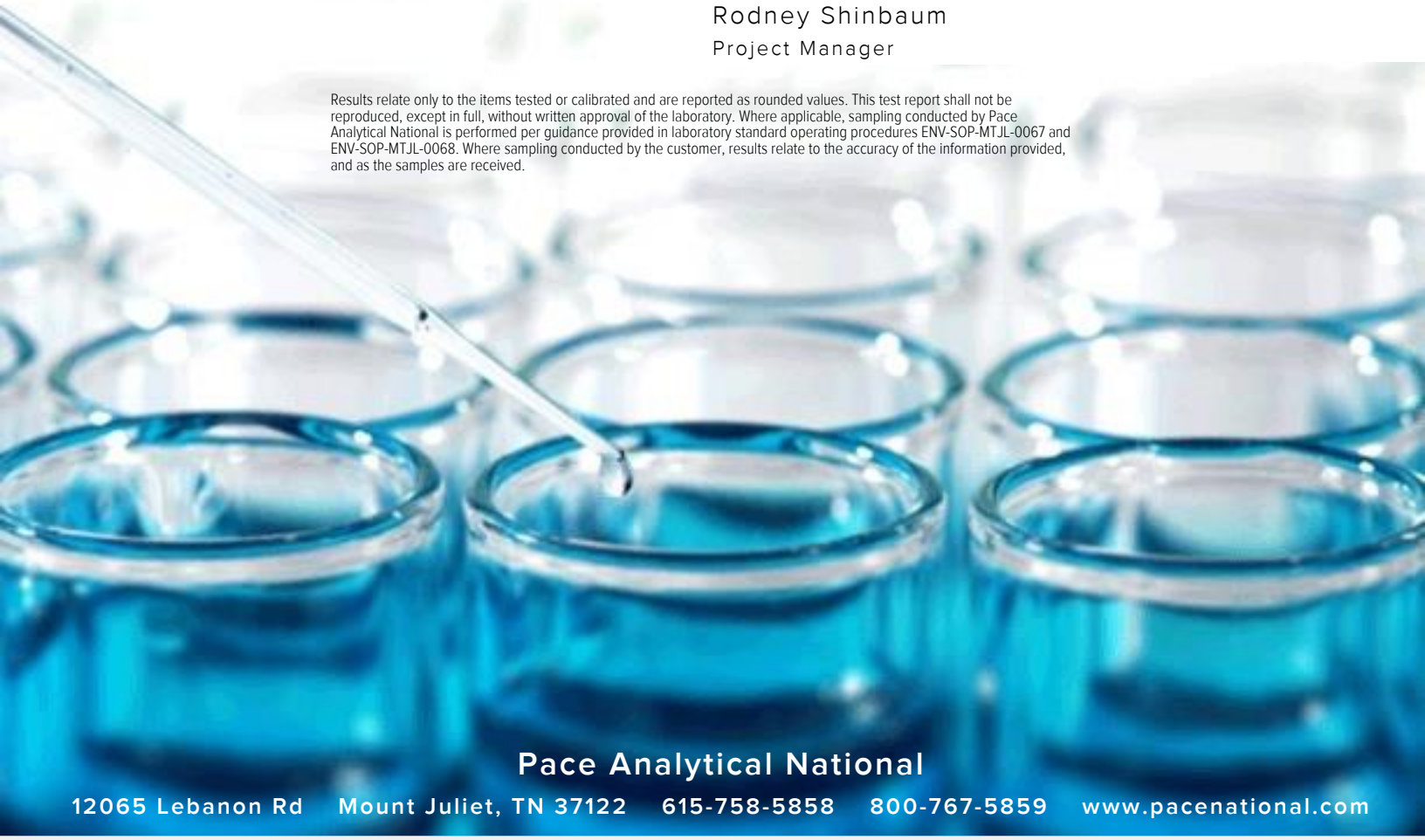


TABLE OF CONTENTS

SAMPLE 1 L1296770-01 WW

Collected by: Bill Cooper
Collected date/time: 12/15/20 10:05
Received date/time: 12/15/20 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Aquatic Toxicity by Method 1002.0	WG1595426	1	12/15/20 14:45	12/15/20 14:45	CM	Mt. Juliet, TN
Calculated Results	WG1595723	1	12/24/20 14:26	12/24/20 14:26	KMG	Mt. Juliet, TN
Wet Chemistry by Method 310.2	WG1595609	1	12/24/20 09:22	12/24/20 09:22	MSP	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG1595723	1	12/23/20 07:06	12/24/20 14:26	KMG	Mt. Juliet, TN

SAMPLE 2 L1296770-02 WW

Collected by: Bill Cooper
Collected date/time: 12/16/20 09:20
Received date/time: 12/16/20 11:35

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1596992	1	12/29/20 17:25	12/29/20 17:25	KMG	Mt. Juliet, TN
Wet Chemistry by Method 310.2	WG1598269	5	12/30/20 16:18	12/30/20 16:18	JER	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG1596992	1	12/28/20 22:06	12/29/20 17:25	KMG	Mt. Juliet, TN

SAMPLE 3 L1296770-03 WW

Collected by: Bill Cooper
Collected date/time: 12/18/20 08:25
Received date/time: 12/18/20 11:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Calculated Results	WG1595723	1	12/24/20 14:28	12/24/20 14:28	KMG	Mt. Juliet, TN
Wet Chemistry by Method 310.2	WG1595609	1	12/24/20 09:23	12/24/20 09:23	MSP	Mt. Juliet, TN
Metals (ICP) by Method 200.7	WG1595723	1	12/23/20 07:06	12/24/20 14:28	KMG	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Rodney Shinbaum
Project Manager

Project Narrative

Please review all information in this report for accuracy and completeness. Contact our office within ten days if there are any questions.

Chronic Test Methods are described in "Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms" (EPA/600/4-89/001).

The Biomonitoring results in this report are only a summary of the tests performed. A detailed report will follow. The detailed report (not this summary sheet) must be submitted to the appropriate regulatory agency.

Additional Information

Analyte	Result	Units
pH (On Site)	7.6	su
Temperature (on-site)	8.8	

Aquatic Toxicity by Method 1002.0

Analyte	Result	Qualifier	Analysis	Batch
	%		date / time	
IC25 - C. dubia	24.4 (PASS)		12/15/2020 14:45	WG1595426

Calculated Results

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (calculated) as CaCO3	85.3		2.50	1	12/24/2020 14:26	WG1595723

Wet Chemistry by Method 310.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
ALK	83.9		20.0	1	12/24/2020 09:22	WG1595609

Metals (ICP) by Method 200.7

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium	27.0		1.00	1	12/24/2020 14:26	WG1595723
Magnesium	4.34		1.00	1	12/24/2020 14:26	WG1595723

Calculated Results

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Hardness (calculated) as CaCO3	81.0		2.50	1	12/29/2020 17:25	WG1596992

Wet Chemistry by Method 310.2

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
ALK	ND		100	5	12/30/2020 16:18	WG1598269

Sample Narrative:

L1296770-02 WG1598269: dilution due to sample color

Metals (ICP) by Method 200.7

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Calcium	26.0		1.00	1	12/29/2020 17:25	WG1596992
Magnesium	3.92		1.00	1	12/29/2020 17:25	WG1596992

Calculated Results

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (calculated) as CaCO3	89.1		2.50	1	12/24/2020 14:28	WG1595723

Wet Chemistry by Method 310.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
ALK	85.7		20.0	1	12/24/2020 09:23	WG1595609

Metals (ICP) by Method 200.7

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Calcium	28.3		1.00	1	12/24/2020 14:28	WG1595723
Magnesium	4.47		1.00	1	12/24/2020 14:28	WG1595723

Method Blank (MB)

(MB) R3606955-1 12/24/20 08:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
ALK	U		9.80	20.0

L1296537-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1296537-02 12/24/20 09:04 • (DUP) R3606955-3 12/24/20 09:05

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	119	117	1	1.69		20

L1297696-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1297696-01 12/24/20 09:24 • (DUP) R3606955-4 12/24/20 09:25

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	66.3	65.4	1	1.37		20

Laboratory Control Sample (LCS)

(LCS) R3606955-2 12/24/20 08:58

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
ALK	200	204	102	90.0-110	

Method Blank (MB)

(MB) R3608469-1 12/30/20 16:13

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
ALK	U		9.80	20.0

L1296501-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1296501-02 12/30/20 16:15 • (DUP) R3608469-3 12/30/20 16:16

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	44.2	44.8	1	1.35		20

L1301247-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1301247-01 12/30/20 16:39 • (DUP) R3608469-4 12/30/20 16:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	32.6	30.3	1	7.31		20

Laboratory Control Sample (LCS)

(LCS) R3608469-2 12/30/20 16:14

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
ALK	200	202	101	90.0-110	

Method Blank (MB)

(MB) R3607481-1 12/24/20 13:40

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Calcium	U		0.0473	1.00
Magnesium	U		0.115	1.00

Laboratory Control Sample (LCS)

(LCS) R3607481-2 12/24/20 13:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	10.0	9.81	98.1	85.0-115	
Magnesium	10.0	10.0	100	85.0-115	

L1297696-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1297696-01 12/24/20 13:57 • (MS) R3607481-6 12/24/20 13:59 • (MSD) R3607481-7 12/24/20 14:02

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10.0	38.5	48.8	47.6	103	91.0	1	70.0-130			2.48	20
Magnesium	10.0	9.06	18.8	18.7	97.5	96.0	1	70.0-130			0.787	20

L1297570-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1297570-01 12/24/20 13:45 • (MS) R3607481-4 12/24/20 13:51 • (MSD) R3607481-5 12/24/20 13:54

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10.0	1510	1520	1500	43.4	0.000	1	70.0-130	E V	E V	1.23	20
Magnesium	10.0	220	233	229	126	90.5	1	70.0-130			1.54	20

Method Blank (MB)

(MB) R3608096-1 12/29/20 11:45

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Calcium	U		0.0473	1.00
Magnesium	U		0.115	1.00

Laboratory Control Sample (LCS)

(LCS) R3608096-2 12/29/20 11:48

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Calcium	10.0	9.30	93.0	85.0-115	
Magnesium	10.0	9.33	93.3	85.0-115	

L1299550-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1299550-01 12/29/20 11:51 • (MS) R3608096-4 12/29/20 11:56 • (MSD) R3608096-5 12/29/20 11:59

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10.0	14.5	24.5	25.0	100	105	1	70.0-130			1.82	20
Magnesium	10.0	13.0	21.9	22.3	89.4	93.4	1	70.0-130			1.79	20

L1299550-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1299550-02 12/29/20 12:02 • (MS) R3608096-6 12/29/20 12:04 • (MSD) R3608096-7 12/29/20 12:07

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Calcium	10.0	13.8	23.9	23.9	100	101	1	70.0-130			0.127	20
Magnesium	10.0	12.4	21.4	21.3	89.8	88.9	1	70.0-130			0.429	20

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
V	The sample concentration is too high to evaluate accurate spike recoveries.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	KY90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA

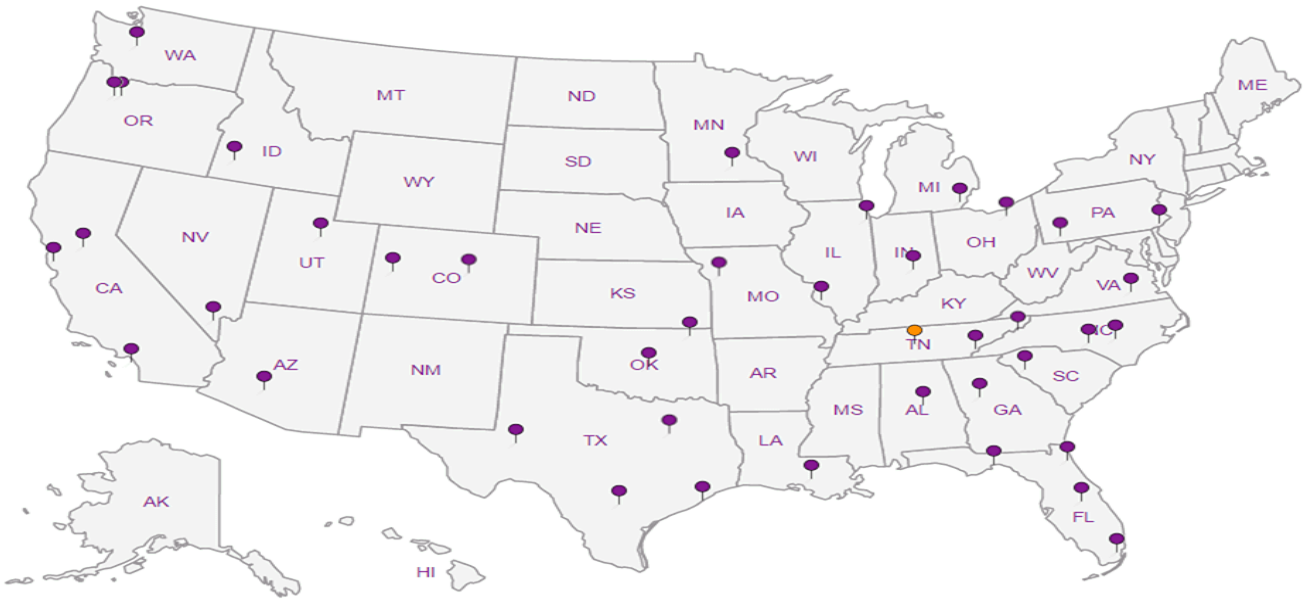
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



City of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Pres Chk

Report to: David Tuck

Email To: cityofcamden2@bellsouth.net

Project Description: Camden Biomonitoring

City/State Collected:

Please Circle: PT MT CT ET

Phone: 731-584-7986

Client Project #

Lab Project # CAMD02-BIOMON

Collected by (print): B. Cooper

Site/Facility ID # TN0064611

P.O. #

Collected by (signature): B Cooper

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

No. of Cntrs

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARDMETALS 250mlHDPE-HNO3								Remarks	Sample # (lab only)
									12									
SAMPLE 1	C	WW		12-14 12-15	1030 1005	3	X	X	X									-01

Chain of Custody Page ___ of ___

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

D060

Table # L1296770

Acctnum: CAMD02
Template: T45463
Prelogin: P816877
PM: 530 - Rodney Shinbaum
PB:
Shipped Via: Field Tech

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Sample 1: Collect 24-hr composite sample from Monday-Tuesday, ESC field tech will deliver to lab on Tuesday. @1006

pH 7.60 Temp 8.8

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
B Cooper	12-15-20	1245		
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.6 ±0 2.6 °C Bottles Received: 3
				If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/15 Time: 1245
				Hold:

Condition: NCF / OK

KO

City of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Report to: David Tuck

Email To: cityofcamden2@bellsouth.net

Project Description: Camden Biomonitoring

City/State Collected:

Please Circle: PT MT CT ET

Phone: 731-584-7986

Client Project #

Lab Project #: CAMD02-BIOMON

Collected by (print): Bill Logan

Site/Facility ID #: TN0064611

P.O. #

Collected by (signature): Bill Logan

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARDMETALS 250mlHDPE-HNO3	Pres Chk	Remarks	Sample # (lab only)
SAMPLE 2	C	WW		12-15 12-16	1005 920	3	X	X	X	√		-02

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

D100

U296770

Acctnum: CAMD02
Template: T45468
Prelogin: P816878
PM: 530 - Rodney Shinbaum
PB:
Shipped Via: Field Tech

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Sample 2: Collect 24-hr composite sample from Tuesday-Wednesday, ESC field tech will deliver to lab on Wednesday.

pH 7.51 Temp 10.0
Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N
RAD Screen <0.5 mR/hr: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Bill Logan	12-16-20	1135	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / (No) HCL / MeoH TBR

Temp: #6 1.2 °C #8 1.2 Bottles Received: 3

Date: 12/16 Time: 11:35

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

City of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

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National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: David Tuck

Email To: cityofcamden2@bellsouth.net

Project Description: Camden Biomonitoring

City/State Collected:

Please Circle: PT MT CT ET

Phone: 731-584-7986

Client Project #

Lab Project # CAMD02-BIOMON

SDG # D210 L296770

Collected by (print): Bill Cooper

Site/Facility ID # TN0064611

P.O. #

Acctnum: CAMD02

Collected by (signature): Bill Cooper

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Template: T45469

Prelogin: P816879

PM: 530 - Rodney Shinbaum

PB:

Immediately Packed on Ice N ___ Y X

Shipped Via: Field Tech

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARDMETALS 250mlHDPE-HNO3	Remarks	Sample # (lab only)
SAMPLE 3	C	WW		12-17 12-18	0820 0825	3	X	X	X		-03

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Sample 3: Collect 24-hr composite sample from Thursday-Friday, ESC field tech will deliver to lab on Friday @ 826

pH 7.84 Temp 9.6

Flow _____ Other _____

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y	N
COC Signed/Accurate:		Y	N
Bottles arrive intact:		Y	N
Correct bottles used:		Y	N
Sufficient volume sent:		Y	N
If Applicable			
VOA Zero Headspace:		Y	N
Preservation Correct/Checked:		Y	N
RAD Screen <0.5 mR/hr:		Y	N

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking #

Relinquished by: (Signature) Bill Cooper	Date: 12-18-20	Time: 1100	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.3 °C Bottles Received: 3	If preservation required by Login: Date/Time
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 12/18 Time: 11:00	Hold: / Condition: NCF / OK

4.3+1.6=5.9

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

January 31, 2020

Town of Camden

Sample Delivery Group:	L1181429
Samples Received:	01/21/2020
Project Number:	
Description:	Camden Biomonitoring
Site:	TN0064611
Report To:	David Tuck PO Box 779 Camden, TN 38320-0779

Entire Report Reviewed By:

Rodney Shinbaum
Project Manager

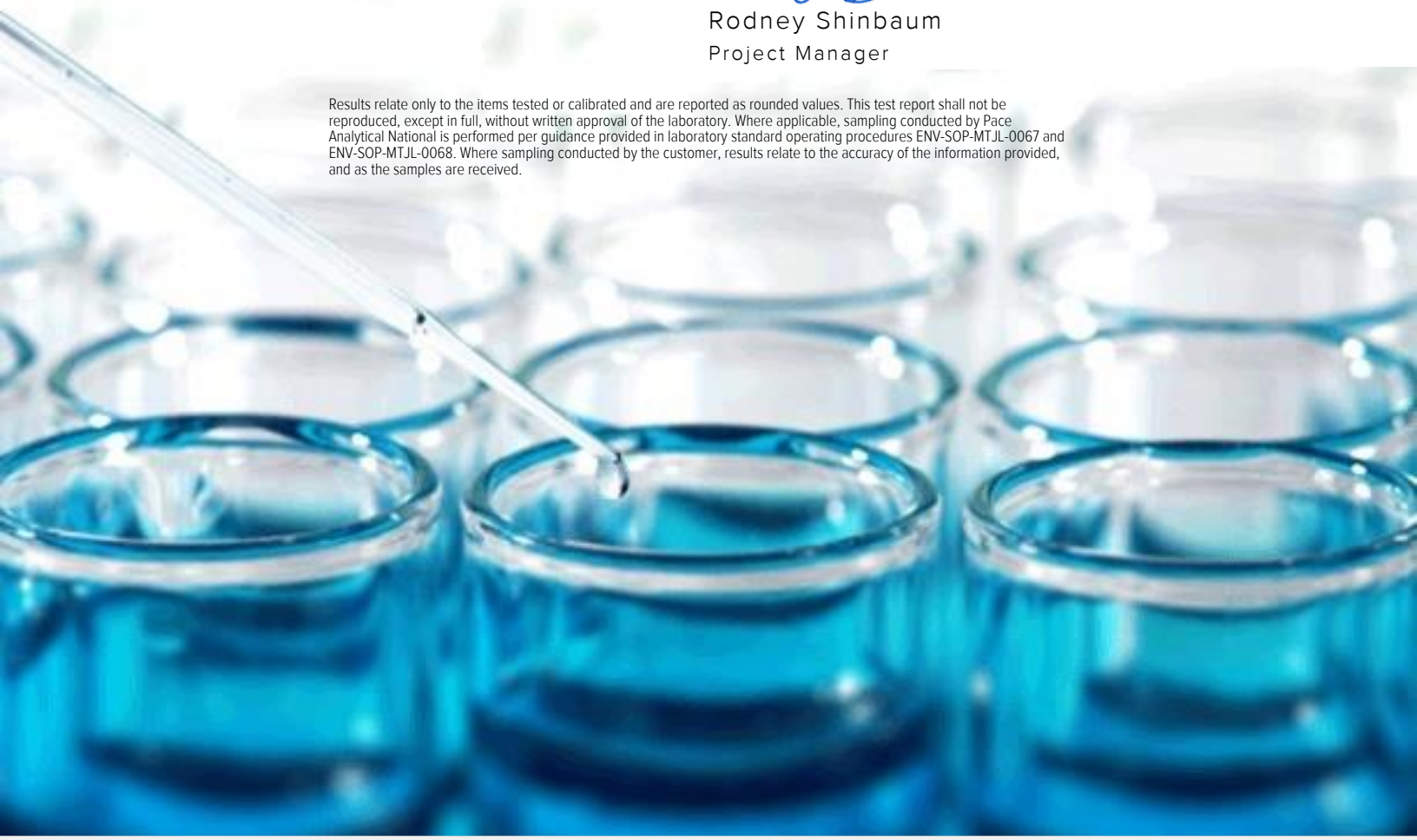


TABLE OF CONTENTS

SAMPLE 1 L1181429-01 WW

Collected by: Bill Cooper
Collected date/time: 01/21/20 10:25
Received date/time: 01/21/20 12:55

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Aquatic Toxicity by Method 1000.0	WG1415082	1	01/21/20 16:41	01/21/20 16:41	CM	Mt. Juliet, TN
Aquatic Toxicity by Method 1002.0	WG1415082	1	01/21/20 16:29	01/21/20 16:29	CM	Mt. Juliet, TN
Wet Chemistry by Method 130.1	WG1414951	1	01/22/20 06:40	01/22/20 14:59	BAM	Mt. Juliet, TN
Wet Chemistry by Method 310.2	WG1415526	2	01/23/20 16:25	01/23/20 16:25	BAM	Mt. Juliet, TN

SAMPLE 2 L1181429-02 WW

Collected by: T Stinson
Collected date/time: 01/22/20 11:25
Received date/time: 01/22/20 13:42

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 130.1	WG1415675	1	01/23/20 14:39	01/24/20 11:36	GB	Mt. Juliet, TN
Wet Chemistry by Method 310.2	WG1415526	2	01/23/20 16:26	01/23/20 16:26	BAM	Mt. Juliet, TN

SAMPLE 3 L1181429-03 WW

Collected by: T Stinson
Collected date/time: 01/24/20 10:20
Received date/time: 01/24/20 12:15

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 130.1	WG1417001	1	01/26/20 06:48	01/27/20 13:44	BAM	Mt. Juliet, TN
Wet Chemistry by Method 310.2	WG1416574	5	01/27/20 16:29	01/27/20 16:29	JER	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Rodney Shinbaum
Project Manager

Project Narrative

Please review all information in this report for accuracy and completeness. Contact our office within ten days if there are any questions.

Chronic Test Methods are described in "Short Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms" (EPA/600/4-89/001).

The Biomonitoring results in this report are only a summary of the tests performed. A detailed report will follow. The detailed report (not this summary sheet) must be submitted to the appropriate regulatory agency.

BIOMONS1 (Water flea) test results reported as INVALID due to control TAC (Test Acceptability Criteria). The control must have >/= 80% Survival, >/= 60% third brood, and PMSD </= 47%. The control for this test had 70% survival, 0% third brood, and PMSD 218.0%. Charges were removed for this test. BE 1/30/2020

Aquatic Toxicity by Method 1000.0

Analyte	Result	Qualifier	Analysis	Batch
	%		date / time	
IC25 - Minnow	>39.6 (PASS)		01/21/2020 16:41	WG1415082

Aquatic Toxicity by Method 1002.0

Analyte	Result	Qualifier	Analysis	Batch
	%		date / time	
IC25 - C. dubia	INVALID		01/21/2020 16:29	WG1415082

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	104	B	30.0	1	01/22/2020 14:59	WG1414951

Wet Chemistry by Method 310.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
ALK	79.6		40.0	2	01/23/2020 16:25	WG1415526

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	66.6	B	30.0	1	01/24/2020 11:36	WG1415675

Wet Chemistry by Method 310.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
ALK	86.2		40.0	2	01/23/2020 16:26	WG1415526

Wet Chemistry by Method 130.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
Hardness (colorimetric) as CaCO3	69.4	B	30.0	1	01/27/2020 13:44	WG1417001

Wet Chemistry by Method 310.2

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/l		mg/l		date / time	
ALK	ND		100	5	01/27/2020 16:29	WG1416574

Sample Narrative:

L1181429-03 WG1416574: Diluted due to color

Method Blank (MB)

(MB) R3493086-1 01/22/20 14:39

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hardness (colorimetric) as CaCO3	10.7	J	1.43	30.0

L1180758-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1180758-01 01/22/20 14:45 • (DUP) R3493086-5 01/22/20 14:46

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	220	226	2	2.69		20

L1181097-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1181097-01 01/22/20 14:49 • (DUP) R3493086-6 01/22/20 14:50

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	184	178	1	3.31		20

Laboratory Control Sample (LCS)

(LCS) R3493086-2 01/22/20 14:40

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hardness (colorimetric) as CaCO3	100	102	102	85.0-115	

L1180372-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1180372-01 01/22/20 14:42 • (MS) R3493086-3 01/22/20 14:43 • (MSD) R3493086-4 01/22/20 14:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hardness (colorimetric) as CaCO3	100	148	206	217	58.0	69.0	1	80.0-120	E J6	E J6	5.20	20

Method Blank (MB)

(MB) R3493773-1 01/24/20 11:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hardness (colorimetric) as CaCO3	10.6	J	1.43	30.0

L1181130-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1181130-02 01/24/20 11:31 • (DUP) R3493773-5 01/24/20 11:32

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	114	111	1	2.67		20

L1181587-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1181587-01 01/24/20 11:39 • (DUP) R3493773-6 01/24/20 11:40

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	86.2	85.8	1	0.465		20

Laboratory Control Sample (LCS)

(LCS) R3493773-2 01/24/20 11:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hardness (colorimetric) as CaCO3	100	85.2	85.2	85.0-115	

L1181097-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1181097-02 01/24/20 11:28 • (MS) R3493773-3 01/24/20 11:29 • (MSD) R3493773-4 01/24/20 11:30

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hardness (colorimetric) as CaCO3	100	173	227	214	54.0	41.0	1	80.0-120	E J6	E J6	5.90	20

Method Blank (MB)

(MB) R3494466-1 01/27/20 13:37

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Hardness (colorimetric) as CaCO3	10.6	J	1.43	30.0

L1181130-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1181130-03 01/27/20 13:43 • (DUP) R3494466-5 01/27/20 13:44

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	120	115	1	4.26		20

L1182790-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1182790-01 01/27/20 13:47 • (DUP) R3494466-6 01/27/20 13:48

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hardness (colorimetric) as CaCO3	89.2	82.4	1	7.93		20

Laboratory Control Sample (LCS)

(LCS) R3494466-2 01/27/20 13:38

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Hardness (colorimetric) as CaCO3	100	92.1	92.1	85.0-115	

L1181097-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1181097-03 01/27/20 13:40 • (MS) R3494466-3 01/27/20 13:41 • (MSD) R3494466-4 01/27/20 13:42

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hardness (colorimetric) as CaCO3	100	163	229	223	66.0	60.0	1	80.0-120	E J6	E J6	2.65	20

Method Blank (MB)

(MB) R3493538-1 01/23/20 16:09

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
ALK	U		6.30	20.0

L1181097-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1181097-01 01/23/20 16:11 • (DUP) R3493538-3 01/23/20 16:12

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	141	142	1	0.707		20

L1181859-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1181859-01 01/23/20 16:35 • (DUP) R3493538-4 01/23/20 16:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	85.1	90.3	1	5.93		20

Laboratory Control Sample (LCS)

(LCS) R3493538-2 01/23/20 16:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
ALK	200	204	102	85.0-115	

Method Blank (MB)

(MB) R3494816-1 01/27/20 16:21

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
ALK	7.82	J	6.30	20.0

L1181097-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1181097-03 01/27/20 16:23 • (DUP) R3494816-3 01/27/20 16:24

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	156	143	1	8.70		20

L1182790-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1182790-02 01/27/20 16:35 • (DUP) R3494816-4 01/27/20 16:36

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
ALK	89.2	88.0	1	1.35		20

Laboratory Control Sample (LCS)

(LCS) R3494816-2 01/27/20 16:22

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
ALK	200	210	105	85.0-115	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

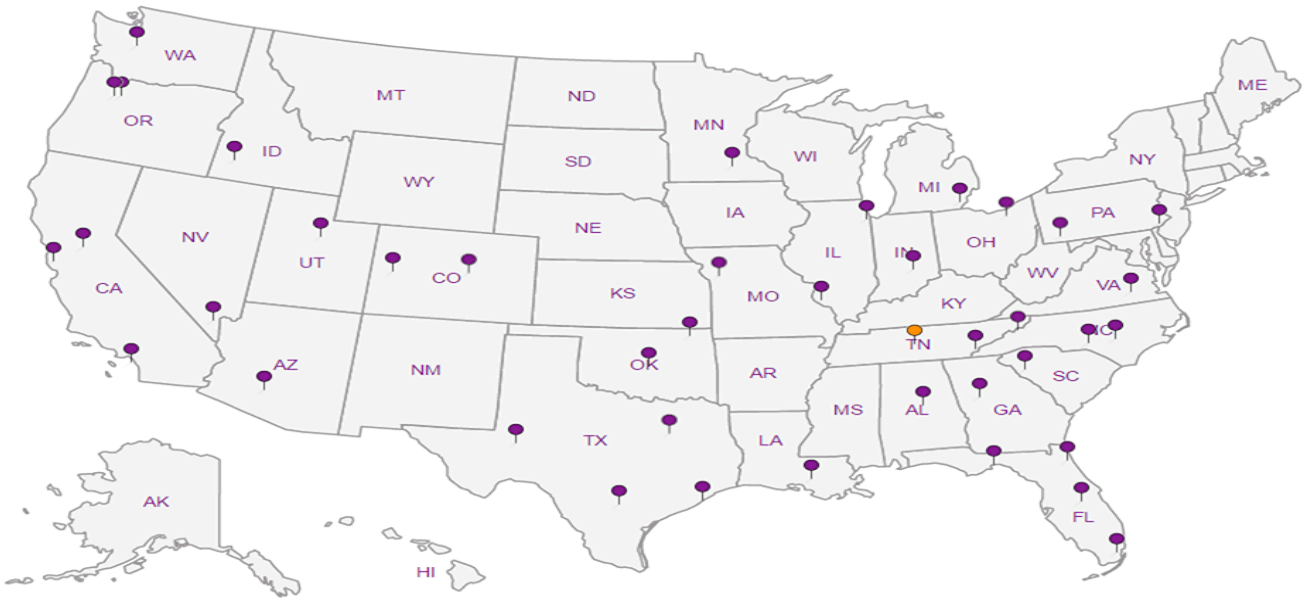
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Town of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Report to: David Tuck

Email To: cityofcamden2@bellsouth.net

Project Description: Camden Biomonitoring

City/State Collected:

Please Circle: PT MT CT ET

Phone: 731-584-7986
Fax: 731-584-1781

Client Project #

Lab Project # CAMD02-BIOMON

Collected by (print): Bill Copper

Site/Facility ID # TN0064611

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARD 250mlHDPE-HNO3	Remarks	Sample # (lab only)
SAMPLE 1	C	WW		1-20 1-21	1120 1026	3	X	X	X		-01

Analysis / Container / Preservative

Pres Chk

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # 1181429

G001

Acctnum: CAMD02
Template: T45463
Prelogin: P750394
PM: 530 - Rodney Shinbaum
PB: JG 1-10-20
Shipped Via: Field Tech

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks:Sample 1: Collect 24-hr composite sample from Monday-Tuesday (1/20-1/21), ESC field tech will deliver to lab on Tuesday 1/21/2020. C 1026

pH 7.03 Temp 5.7

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist
COC Seal Present/Intact: X NP __Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: X Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR	
Bill Copper	1-21-20	1255			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.2-1=4.1 °C Bottles Received: 3	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1/21/20 Time: 10:55	Hold: / Condition: NCF / OK

Town of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:

Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Pres Chk

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

Report to: David Tuck

Email To: cityofcamden2@bellsouth.net

Project Description: Camden Biomonitoring

City/State Collected:

Please Circle: PT MT CT ET

Phone: 731-584-7986
Fax: 731-584-1781

Client Project #

Lab Project # CAMD02-BIOMON

SDG # 1181429

G035

Collected by (print): T Stinson

Site/Facility ID # TN0064611

P.O. #

Acctnum: CAMD02

Collected by (signature): Thomas Stinson

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Template: T45469
Prelogin: P750400
PM: 530 - Rodney Shinbaum
PB: JG 1-10-20
Shipped Via: Field Tech

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARD 250mlHDPE-HNO3 (27)	Remarks	Sample # (lab only)
SAMPLE 32	C	WW		1/21 | 1-22	1025 | 1125	3	X	X	X		-02

@ 1125 on 1-22

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other________

Remarks: ~~Sample 3: Collect 24-hr composite sample from Thursday-Friday (1/23-1/24), ESC field tech will deliver to lab on Friday, 1/24/2020.~~

pH 7.48 Temp 12.1°C

Flow — Other ________

Samples returned via:
__ UPS __ FedEx __ Courier ________

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact: X NP __Y __N
COC Signed/Accurate: ✓Y __N
Bottles arrive intact: ✓Y __N
Correct bottles used: ✓Y __N
Sufficient volume sent: ✓Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: ✓Y __N
RAD Screen <0.5 mR/hr: ✓Y __N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / (No) HCL / MeoH TBR	
Thomas Stinson	1-22-20	1342			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C 4.6±0=4.6 AC A6 — Bottles Received: 3	If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) Carol Kemp	Date: 1/22/20 Time: 1342	Hold: — Condition: NCF / (OK)

Town of Camden

PO Box 779
Camden, TN 38320-0779

Billing Information:
Mr. Johnny Townsend
PO Box 779
Camden, TN 38320-0779

Report to: David Tuck

Email To: cityofcamden2@bellsouth.net

Project Description: Camden Biomonitoring

City/State Collected:

Please Circle: PT MT CT ET

Phone: 731-584-7986
Fax: 731-584-1781

Client Project #

Lab Project # CAMD02-BIOMON

Collected by (print): T Shinbaum

Site/Facility ID # TN0064611

P.O. #

Collected by (signature): Thomas Stinson

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Chain of Custody Page ___ of ___

Pace Analytical® National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

SDG # L1181429
E239

Acctnum: CAMD02
Template: T45468
Prelogin: P750397
PM: 530 - Rodney Shinbaum
PB: JG 1-10-20

Shipped Via: Field Tech

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Pres Chk	ALK 125mlHDPE-NoPres	Biomonitoring 1 Gal-HDPE-NoPres	HARD 250mlHDPE-HNO3	Remarks	Sample # (lab only)
SAMPLE # 3	C	WW		1-23	1110	3		X	X	X		-03
				1-24	1020						@ 1020 on 1-24	

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: Sample # 3 ~~2~~ Collect 24-hr composite sample from Tuesday-Wednesday (1/21-1/22), ESC field tech will deliver to lab on ~~Wednesday, 1/22/~~2020.

pH 1.53 Temp 12.8c

Flow _____ Other _____

Samples returned via: __ UPS __ FedEx __ Courier _____

Tracking #

Sample Receipt Checklist

COC Seal Present/Intact:	NP	Y N
COC Signed/Accurate:		Y N
Bottles arrive intact:		Y N
Correct bottles used:		Y N
Sufficient volume sent:		Y N
If Applicable		
VOA Zero Headspace:		Y N
Preservation Correct/Checked:		Y N
RAD Screen <0.5 mR/hr:		Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Thomas Stinson	1-24-20	1215	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes / No
HCL / MeoH
TBR

Temp: °C Bottles Received:
1.0+.3=1.3 A16 3

Date: 1-24-20 Time: 12:15

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK