

**CITY OF CLINTON**  
**CLINTON WATER AND SEWER DEPARTMENT**  
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William Hinchey, Manager

Richard McCormac, Mayor

December 13, 2022

Richard Healey  
Enforcement Branch Manager  
Arkansas Energy and Environment  
Environmental Quality  
5301 Northshore Drive  
North Little Rock, AR 72118

Mr. Healey:

The Clinton Water and Sewer Department hired ESC, Inc. to do the testing for the Whole Effluent Toxicity (WET) Limitations for the cladoceran, *Ceriodaphnia dubia*, and the fathead minnow, *Pimephales promelas* chronic toxicity limits. Three composite samples of Outfall 001 were collected by ESC personnel on August 29, 31 and September 2, 2022, at 1200, 0900, and 0900 hours, respectively.

The results of the *Ceriodaphnia dubia* test can be found in Table 1. One hundred percent survival occurred in the control and in the 100.0 percent critical dilution after seven days of exposure. The average number of neonates per female after three broods in the control and in the 100.0 percent critical dilution was 23.0 and 27.0, respectively. The NOEC for survival and growth in this test was 100.0 percent effluent ( $p=.05$ ).

The fathead minnow test results can be found in Table 2. After seven days of exposure, 95.0 percent survival occurred in the control and in the 100.0 percent critical dilution. The average weight gained per minnow in the control and in the 100.0 percent critical dilution was 0.850 milligram (mg), and 0.900 mg, respectively. The NOEC for survival and growth in this test was 100.0 percent effluent ( $p=.05$ ).

**Table 1: Results of the Chronic Definitive Ceriodaphnia dubia Test**

Percent Effluent	Percent Survival	Sig.*	Mean # Neonates-Surviving	Mean # Neonates-Total	Sig.*
Control	100.00		23.0	23.0	
32.0	100.00		25.0	25.0	
42.0	100.00		26.0	26.0	
56.0	90.00		28.0	25.0	
80.0	90.00		26.0	23.0	
100.0	100.00		27.0	27.0	

\*significant when compared to the control (p=.05). Test validity based on mean number of neonates per surviving female. NOEC value based on total mean number of neonates.

**Table 2: Results of the Chronic Definitive Fathead Minnow Test**

Percent Effluent	Percent Survival	Sig.*	Mean Dry Weight (mg)	Sig.*
Control	95.0		0.850	
32.0	98.0		0.850	
42.0	98.0		0.850	
56.0	100.0		0.850	
80.0	92.0		0.950	
100.0	95.0		0,900	

\*significant when compared to the control (p=.05).

The three composite samples of Outfall 001 collected from the East Wastewater Treatment Facility serving the city of Clinton, Arkansas, on August 29, 31, and September 2, 2022, were not found to be lethally toxic to the Pimephales promelas test organisms nor the Ceriodaphnia dubia test organisms in the 100.0 percent critical dilution after seven days of exposure (p=.05). Sub-lethal effects (i.e., lack of growth or reproduction) were not noted in the critical dilution in either test (p=.05).

Sincerely,



Jackie William Hinchey, Jr., Manager  
Clinton Water and Sewer Department