

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

Richard McCormac, Mayor

July 18, 2023

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 June 26, 28, and 30, 2023, at 0800 hours.

The results of the *Ceriodaphnia dubia* test can be found in Table 1. Eighty-nine percent survival occurred in the control after seven days of exposure. The average number of neonates per female after three broods in the control was 15.4. Zero percent survival occurred in all the effluent test concentrations after 4 days of exposure. The NOEC for survival and reproduction in this test was zero percent effluent ($p=.05$).

The fathead minnow test results can be found in Table 2. One hundred percent survival occurred in the control after seven days of exposure. The average weight gained per minnow in the control was 0.648 milligram (mg). Zero percent survival occurred in all the effluent test concentrations after 4 days of exposure. The NOEC for survival and growth in this test was zero percent effluent ($p=.05$).

The total residual chlorine of the sample collected on June 28, 2023, was approximately 10.0 mg/L. Per the request of the client, a 24-hour acute screening test was initiated on July 6, 2023, using the sample collected on June 30, 2023. The fathead minnow was the test organism. One hundred percent survival occurred in control and in the 100.0 percent test concentration after 24 hours of exposure.

Table 1: Results of the Chronic Definitive Ceriodaphnia dubia Test

Percent Effluent	Percent Survival	Sig.*	Mean # Neonates-Surviving	Mean # Neonates-Total	Sig.*
Control	89.00		17.4	15.4	
32.0	0.00	*			
42.0	0.00	*			
56.0	0.00	*			
80.0	0.00	*			
100.0	0.00	*			

*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	100.0		0.648	
32.0	0.0	*		
42.0	0.0	*		
56.0	0.0	*		
80.0	0.0	*		
100.0	0.0	*		
Control (24-hour acute)	100.0			
100.0 (24-hour acute)	100.0			

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

The second of three composite samples of Outfall 001 collected from the East Wastewater Treatment Facility serving the city of Clinton, Arkansas, on June 28, 2023, was found to be lethally toxic to the Pimephales promelas test organisms and the Ceriodaphnia dubia test organisms in all the effluent test concentrations after approximately 48 hours of exposure (p=.05). The total residual chlorine in this sample was approximately 10.0 mg/L.

Sincerely,



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