



NORTH CAROLINA
Environmental Quality

ROY COOPER
Governor

DIONNE DELLI-GATTI
Secretary

S. DANIEL SMITH
Director

May 24, 2021

Mr. Jim Sumner
Environmental Testing Solutions, Inc.
P.O. Box 7565
Asheville, NC 28802

Dear Mr. Sumner,

Results of the 2021 Performance Evaluation toxicity test series have been reviewed by the Aquatic Toxicology Branch staff. Following the summary of overall results for the chronic and acute *Ceriodaphnia dubia* tests, acute *Pimephales promelas* test, and the pH, conductivity, and hardness analyses, test results generated by your laboratory are discussed.

Overall Test Results

***Ceriodaphnia dubia* chronic**

There were seven chronic *Ceriodaphnia* tests performed using Solution A following the methods described in the *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (4th Edition), EPA-821-R-02-013 and the "North Carolina Phase II Chronic Whole Effluent Toxicity Test Procedure," December 2010. The mean IC25 was 1.15% with a standard deviation of 0.32 (Figure 1). All seven laboratories met minimum quality control criteria and reported results that were within the allowable two standard deviations from the mean IC25 value.

***Ceriodaphnia dubia* acute**

There were six acute *Ceriodaphnia dubia* tests conducted using Solution B following the methods described in *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms* (Fifth Edition), EPA-821-R-02-012, October 2002. The mean LC50 value was 4.17% with a standard deviation of 0.46 (Figure 2). All six laboratories reported results that met minimum quality control criteria and were within the allowable two standard deviations from the mean LC50 value.

***Pimephales promelas* acute**

There were six acute *Pimephales promelas* tests conducted using Solution C following the methods described in *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms* (Fifth Edition), EPA 821-R-02-012, October 2002. The mean LC50 value was 2.7% with a standard deviation of 0.42 (Figure 3). All six



laboratories reported results that met minimum quality control criteria and were within two standard deviations of the mean LC50 value.

pH

There were seven pH results reported for each of Solutions D and E. The mean pH calculated for Solution D was 3.97 with a standard deviation of 0.12 (Figure 4). For the 2021 performance evaluation, an upper and lower range of +/- 0.2 pH units were used to be more consistent with NELAC PT standards. All seven laboratories reported results that were within 0.2 pH units of the mean pH.

For Solution E, the mean pH was 9.08 with a standard deviation of 0.11 (Figure 5). For the 2021 performance evaluation, an upper and lower range of +/- 0.2 pH units were used to be more consistent with NELAC PT standards. All seven laboratories reported results that were within 0.2 pH units of the mean pH.

Conductivity

There were seven conductivity results reported for each of Solutions F and G. The mean conductivity for Solution F was 2342.6 $\mu\text{mhos/cm}$, with a standard deviation of 39.5 (Figure 6). All seven laboratories reported results that were within two standard deviations of the mean conductivity.

For Solution G the mean was 7633.1 $\mu\text{mhos/cm}$ with a standard deviation of 200.7 (Figure 7). All seven laboratories reported results that were within two standard deviations of the mean conductivity.

Hardness

There were seven total hardness results reported for each of Solutions H and I. The mean total hardness for Solution H was 12.5 mg/L with a standard deviation of 2.82 (Figure 8). All seven laboratories reported results that were within two standard deviations of the mean hardness.

For Solution I, the mean was 76.7 mg/L with a standard deviation of 3.08 (Figure 9). All seven laboratories reported results that were within two standard deviations of the mean hardness.



Individual Lab Discussion

Lab: Environmental Testing Solutions, Inc. (ETS)

The results of the chronic and acute *Ceriodaphnia dubia*, acute *Pimephales promelas*, pH, conductivity, and hardness solution analyses test results have been reviewed and are enclosed. ETS's test results were all found to be within acceptable ranges.

Please refer to the following list to determine your respective Lab # for each enclosure.

Figure 1	<i>Ceriodaphnia</i> Chronic Solution A	Lab # 7
Figure 2	<i>Ceriodaphnia</i> Acute Solution B	Lab # 1
Figure 3	<i>Pimephales promelas</i> Acute Solution C	Lab # 4
Figures 4-9	pH, Conductivity, Hardness	Lab # 2

Thank you for your cooperation in this study. We appreciate your commitment to maintaining certification with the State of North Carolina. If you have any questions, please contact me at cindy.a.moore@ncdenr.gov.

Sincerely,

DocuSigned by:

Cindy Moore

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Cindy Moore, Supervisor
Aquatic Toxicology Branch



Enclosures





