

50-390/391



Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381-2000

May 25, 2001

Tennessee Department of Environment & Conservation  
Division of Water Pollution Control  
Compliance and Enforcement  
Sixth Floor, L & C Annex  
401 Church Street  
Nashville, Tennessee 37243-1534

Dear Sir:

**WATTS BAR NUCLEAR PLANT (WBN) - NATIONAL POLLUTANT  
DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT NO. TN0020168 -WBN  
REQUESTS TOXICITY TEST BE DECLARED INVALID**

WBN requests the Tennessee Department of Environment and Conservation (TDEC) consider the failure of a toxicity test conducted April 17-25, 2001 be ruled invalid and that WBN be required to only report the follow-up test results. Semi-annual compliance biomonitoring is required by WBN's NPDES permit for Outfalls 101, 112, and 113. Short-term chronic tests using fathead minnows and daphnids were conducted April 17-25, 2001. All tests met the applicable permit limits with the exception of the Outfall 112 fathead minnow test. A repeat of that test was conducted May 7-11, 2001 and demonstrated compliance with the permit limits. In accordance with section III C of the NPDES permit, WBN is submitting the results of these tests within 30 days of obtaining the initial WET test results indicating a failure at Outfall 112.

Normally, a follow-up test does not negate an initial toxicity test failure. However, WBN has collected evidence indicating that this failure was due to naturally occurring pathogens from a source upstream of any industrial discharges to Outfall 112. WBN has been voluntarily participating in a special project to evaluate pathogen interference in WET tests with several other TVA facilities that have experienced a similar intermittent toxicity at their outfalls in the past. The results of this study and any recommendations from the study will be submitted to TDEC this fall under separate cover. As a result of the information developed during WBN's participation in this project and the timing of this most recent routine semi-annual toxicity testing, WBN saw an opportunity to collect additional data which appears sufficient to support the request that TDEC declare the April 17-25 test at WBN Outfall 112 invalid or consider postponing a decision until the final fish pathogen report is available. The following summary and the attachment of a preliminary report regarding the testing conducted on WBN samples in addition to routine toxicity testing is offered as justification for WBN's request.

IE 25

The April test of fathead minnows exposed to Outfall 112 samples resulted in an  $IC_{25}$  of 23.8 percent effluent (4.2 TUc) due to significant and highly variable mortality observed throughout the Outfall 112 serial dilution series. This pattern of mortality has been observed previously in WBN Outfall 112 samples and may be related to ambient conditions upstream of the Construction Runoff Holding Pond. Samples from the April toxicity test of Outfall 112 were included in an on-going special study by TVA to investigate pathogen interference in WET tests. Preliminary results using both filtered and unfiltered samples appear to support the hypothesis that the toxicity in Outfall 112 samples is the result of a naturally occurring fish pathogen present in ambient water.

The repeat test of Outfall 112 samples with fathead minnows was conducted May 7-14, 2001. Surface stream samples collected upstream of the sewage treatment plant (STP) discharge (Outfall 111) and from the STP discharge directly were also tested as part of this study to evaluate the influence of individual inflows on the quality of Outfall 112. The resulting  $IC_{25}$  value for fathead minnows exposed to Outfall 112 samples was >100 percent in the follow-up test, so the permit limit was met. Very little mortality occurred in the Outfall 112 follow-up test and survival in the Outfall 111 samples was 100 percent. All concentrations of Outfalls 112 and 111 exceeded the mean dry weight of the controls. The surface stream samples collected upstream of the sewage treatment plant showed highly variable survival effects with fathead minnow survival significantly reduced from controls using Homoscedastic t-Tests. These results are consistent with results from TVA's fish pathogen special study. Preliminary indications are that the cause of the poor survival and resulting compliance problems with Outfall 112 is biological in nature and that the source of the organism(s) is the surface stream inflow to the pond.

A complete report and TVA recommendations based on the fish pathogen study will be submitted this fall. WBN proposes that in this particular case, the preliminary results indicated in the attachment from The Advent Group Inc. are sufficient to declare the results of the April 17-25 failure at Outfall 112 invalid. The April toxicity results are due to be reported in the June Discharge Monitoring Report (DMR) for WBN. Please contact Jennifer Moses at 256-386-2518 or Rob Crawford at 423-365-8005 to discuss any comments or questions you have following your review of the information provided.

Sincerely,



Robert J. Crawford  
Environmental Supervisor

Enclosure  
cc: See Page 3

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