

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

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March 21, 1983

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U.S. Nuclear Regulatory Commission
Region II
ATTN: James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

OIE BULLETIN 81-03 - FLOW BLOCKAGE OF COOLING WATER TO SAFETY
COMPONENTS BY CORBICULA SP. (ASIATIC CLAM) AND MYTILUS SP. (MUSSEL)

As requested by E. L. Jordan's letter to L. M. Mills dated
January 21, 1983, enclosed is TVA's action response to the
supplemental questions transmitted by that letter for Browns Ferry,
Sequoyah, and Watts Bar Nuclear Plants. If you have any questions,
please call Jim Domer at FTS 858-2725.

To the best of my knowledge, I declare the statements contained
herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

D S Kammer

D. S. Kammer
Nuclear Engineer

Enclosure

cc: Mr. R. C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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ENCLOSURE

RESPONSE TO NRC REQUEST FOR SUPPLEMENTAL INFORMATION
OIE BULLETIN 81-03
FLOW BLOCKAGE OF COOLING WATER TO SAFETY COMPONENTS
BY CORBICULA SP. (ASIATIC CLAM) AND MYTILUS SP. (MUSSEL)

Browns Ferry units 1, 2, and 3

NRC Question

5.e. Describe the planned mode of operation and dosage levels for the sodium hypochlorite system.

TVA Response

The emergency equipment cooling water (EECW) system will be chlorinated whenever it is in service during the clam spawning season. The water will be treated with total residual chlorine of 0.6 to 0.8 ppm concentration. Based on our studies to date, this level of chlorine is necessary to obtain assurance that our program is adequate; however, the chlorine concentration will be changed if future TVA studies indicate a necessity to do so. Our main goal is to optimize chlorine level while maintaining adequate clam control; however, the raw cooling water (RCW), raw service water (RSW), and high-pressure fire protection systems (HPFP) are chlorinated continuously for two three-week periods per year at the beginning of the clam spawning season and again at the end with 0.4 to 0.5 ppm total residual chlorine concentration which has given satisfactory results for these systems. During the chlorination period a small continuous flow of chlorinated water will be established through all major fire protection headers except those fire protection systems or parts thereof ordinarily not exposed to raw water, i.e., filled with chemically-treated water or stored dry. Equipment failures resulting in loss of chlorination in excess of 14 days will be evaluated to determine if additional flushing or shock chlorination is required to return the system to a normal condition.

Sequoyah units 1, and 2

NRC Question

- 5.e. Provide dosage concentrations for the sodium hypochlorite system for both the essential raw cooling water (ERCW) and fire protection systems.

TVA Response

The ERCW will be chlorinated continuously during the clam spawning season. The water will be treated with total residual chlorine of 0.6 to 0.8 ppm concentration. Based on our studies to date, this level of chlorine is necessary to obtain assurance that our program is adequate; however, the chlorine concentrations will be changed if further studies indicate a necessity to do so. Our main goal is to optimize chlorine level while maintaining adequate clam control. The RCW, RSW, and HPPF systems will be treated continuously with total residual chlorine of 0.6 to 0.8 ppm concentration for two three-week periods per year at the beginning of the clam spawning season and again at the end. Equipment failures resulting in loss of chlorination in excess of 14 days will be evaluated to determine if additional flushing or shock chlorination is required to return the system to a normal condition.

Watts Bar units 1 and 2

NRC Question

- 3.e. Provide dose requirements for low-level chlorination of safety systems as well as frequency of application. Describe in greater detail the periodic surveillance program to be initiated when the plant becomes operational.

TVA Response

Injection of chlorine at the intake pumping station (IPS) will simultaneously treat the ERCW, RCW, and HPPF systems. Treatment at the IPS shall be done continuously during the entire clam spawning season with total residual chlorine of 0.6 to 0.8 ppm concentration. Based on our studies to date, this level of chlorine is necessary to obtain assurance that our program is adequate; however, the chlorine concentrations will change if further studies indicate a necessity to do so. Our main goal is to optimize chlorine level while maintaining adequate clam control. During the clam spawning

season, a small continuous flow of chlorinated water will be established through all major fire protection headers except those fire protection systems or parts thereof ordinarily not exposed to raw water, i.e., filled with chemically treated water or stored dry. Equipment failures resulting in loss of chlorination in excess of 14 days will be evaluated to determine if additional flushing or shock chlorination is required to return the system to a normal condition. If clams are discovered in the ERCW or HPFP systems during heat exchanger or valve maintenance, an investigation will be initiated to determine the extent of clam infestation.

This response supersedes our response submitted on item 1b.f in L. M. Mills' letter to J. P. O'Reilly dated July 21, 1981.