

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

MAY 05 1988

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket Nos. 50-327
50-328

SEQUOYAH NUCLEAR PLANT (SQN) UNITS 1 AND 2 - APPENDIX B, ENVIRONMENTAL
TECHNICAL SPECIFICATIONS - FISHKILL

Enclosed is my follow-up report to the April 12, 1988 fishkill in accordance
with the requirements in Appendix B, Environmental Technical Specifications,
subsections 4.1.1 and 5.4.2.

The initial notification required by subsection 5.4.2.a was made by telecopy
to the Document Control Desk on April 12, 1988.

If you have any questions, please telephone M. R. Harding at (615) 870-6422.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosure
cc: See page 2

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U.S. Nuclear Regulatory Commission

MAY 05 1988

cc (Enclosure):

Mr. K. P. Barr, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. Philip L. Stewart, Manager
Chattanooga Field Office
Office of Water Pollution Control
2501 Milne Avenue
Chattanooga, Tennessee 37406-3399

Mr. David Young, Fish Habitat Biologist
Tennessee Wildlife Resources Agency
216 East Penfield Street
Crossville, Tennessee 38555

Mr. G. G. Zech, Assistant Director
for Projects
TVA Projects Division
U.S. Nuclear Regulatory Commission
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Sequoyah Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

Enclosure

On April 12, 1988, the Sequoyah Nuclear Plant (SQN) Environmental Section supervisor discovered a fishkill in the yard drainage pond. This event was reported to the State of Tennessee, Division of Water Pollution Control, and NRC as required by SQN Environmental Technical Specifications. Upon the discovery, the supervisor requested that chemistry personnel collect samples of pond effluents. Additionally, TVA biologists were contacted to initiate an investigation of the fishkill. Preliminary analysis results yielded a hydrazine concentration of 52 parts per billion (ppb), potential hydrogen-ion activity (pH) 8.21, ammonia 843 ppb, dissolved oxygen 6.8 parts per million (ppm), and total residual chlorine less than 0.1 ppm.

On April 13, 1988, TVA biologists began an investigation of the fishkill. The biologist estimated that 3,000 to 4,000 green sunfish were killed--most were between one to three inches in length. Most of the fish were thought to have been dead for approximately one to three days (April 11-13, 1988). The most probable cause of the fishkill is considered to have been toxic concentrations of hydrazine and ammonia in the yard drainage pond inlet channel and pipe. The toxic concentration of hydrazine and ammonia in the inlet channel and pipe resulted from its limited volume. The long, narrow channel routes from the Turbine Building sump discharge to the east inlet of the yard drainage pond. Fish frequently congregate in this channel and at the inlet pipe to the yard drainage pond.

Normally, the drainage of effluents from the Turbine Building sump would have been discharged to the SQN low-volume waste pond; however, the sump was routed to the yard drainage pond to ameliorate a high pH problem caused by algal photosynthesis in the yard drainage pond. The yard drainage pond normally provides collection, blending, and monitoring for yard and station drainage. The National Pollutant Discharge Elimination System (NPDES) permit allows the yard drainage pond or low-volume waste pond to receive effluents from the Turbine Building sump.

During the preliminary investigation, it was suspected that effluents from a steam generator and/or auxiliary boiler drain to the yard drainage pond possibly attributed to the fishkill. Daily journals were reviewed to determine if these systems were drained before and during the fishkill. It has been determined that 3,800 gallons of waste was drained from auxiliary boilers A and B on April 11, 1988. Hydrazine concentrations measured 224 ppm and 136 ppm respectively in boilers A and B. The No. 3 steam generator for unit 2 was intermittently drained (approximately 35,000 gallons) to the Turbine Building sump in the April 8-9, 1988 period. The hydrazine concentration in the steam generator on April 8, 1988, was 0.88 ppm.

TVA has concluded that the steam generator and boiler drains, coupled with low flows of the yard drainage systems and limited inlet channel volume, created localized concentrations (predominantly hydrazine and ammonia) that were probably toxic to fish. Also, the high hydrazine concentration probably created low or nonexistent dissolved oxygen content at the yard drainage pond inlet pipe and channel areas resulting in asphyxiation of the fish. During this event, no NPDES limits were exceeded. The State has concurred with TVA's results. The State has informed TVA that they consider this incident closed.

There is no further corrective action required for this incident.