REGULATORY DOCKET FILE COPY

DEC 2 9 1980

Distribution:
Docket
NRC PDR
Local PDR
ORB #2 Reading
D. Eisenhut
R. Purple
T. Novak
R. Tedesco
G. Lainas
J. Roe
J. Heltemes, AEOD
T. Ippolito
S. Norris
R. J. Clark
OELD
OI&E (3)
NSIC
TERA
ACRS (16)
K. Kniel
W. Minners

Docket No. 50-259
50-260
50-296
50-327
50-328
50-390
50-391
50-438
50-439
STN 50-518
STN 50-519
STN 50-520
STN 50-521
STN 50-553
STN 50-554
STN 50-566
STN 50-567

Mr. Hugh G. Parris
Manager of Power
Tennessee Valley Authority
500A Chestnut Street - Tower II
Chattanooga, Tennessee 37401

Dear Mr. Parris:

Reference is made to your letter of September 17, 1980 describing Tennessee Valley Authority's (TVA) program for resolving the Anticipated Transients Without Scram (ATWS) issue for TVA's nuclear facilities. The staff has proposed that the ATWS issue be the subject of a future rule-making procedure to determine the requirements and schedule for any plant modifications. For this reason, we do not propose to comment on your ATWS program at this time other than to note that some of the modifications you listed in Table 1, such as instrumentation for and modifications to the scram discharge volume, are likely to be required separately from the ATWS program and on a more accelerated schedule.

Sincerely,

ORIGINAL SIGNED BY

Darrell G. Eisenhut, Director
Division of Licensing

*SEE PREVIOUS YELLOW FOR CONCURRENCE 8101210642

OFFICE	ORB #2	ORB #2	DST	~~AD:OR~~	AD:L	
SURNAME	RJClark:kf	TIppolito	*	TNovak	RTedesco	D. Eisenhut
DATE	12/ /80	12/ /80	12/3/80	12/11/80	12/11/80	12/15/80

cc:

H. S. Sanger, Jr., Esquire
General Counsel
Tennessee Valley Authority
400 Commerce Avenue
E 11B 33 C
Knoxville, Tennessee 37902

Mr. Ron Rogers
Tennessee Valley Authority
400 Chestnut Street, Tower II
Chattanooga, Tennessee 37401

Mr. H. N. Culver
249A HBD
400 Commerce Avenue
Tennessee Valley Authority
Knoxville, Tennessee 37902

Robert F. Sullivan
U. S. Nuclear Regulatory Commission
P. O. Box 1863
Decatur, Alabama 35602

Athens Public Library
South and Forrest
Athens, Alabama 35611

Mr. John F. Cox
Tennessee Valley Authority
W9-D 207C
400 Commerce Avenue
Knoxville, Tennessee 37902

Mr. Herbert Abercrombie
Tennessee Valley Authority
P. O. Box 2000
Decatur, Alabama 35602

GOVERNMENT PRINTING OFFICE 1979-286-862

FROM:	DATE OF DOCUMENT	DATE RECEIVED	NO.
L. M. Mills, Manager Nuclear Regulation & Safety TVA, Chattanooga, Tennessee	09-17-80	09-25-80	NRR-4354
	LTR. MEMO.	REPORT	OTHER

TO:	ORIG.	CC	OTHER
HRDenton			

ACTION NECESSARY	X	CONCURRENCE	☐	DATE ANSWERED
NO ACTION NECESSARY	☐	COMMENT	☐	BY 10-17-80

CLASSIF.	POST OFFICE	FILE CODE
	REG. NO.	

DESCRIPTION (Must Be Unclassified)

TVA'S ANTICIPATED TRANSIENTS WITHOUT SCRAM (ATWS) PROGRAM

ENCLOSURES

REFERRED TO	DATE	RECEIVED BY	DATE
DEisenhut	09-25	cc: Case	
Spoolito / Rooney		Denton Ross	
		Schroeder 1. PPAS	
		2. Grimes 3. Hanauer	
		4. Snyder 5. Vollmer	

REMARKS

Receipt of TVA letter acknowledged. Submittal under review by DST

U. S. NUCLEAR REGULATORY COMMISSION

MAIL CONTROL FORM

FORM NRC 326S (4-79)

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

September 17, 1980

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Denton:

In the Matter of the	)	Docket Nos. 50-529
Tennessee Valley Authority	)	50-260
		50-296
		50-327
		50-328
		50-390
		50-391
		50-438
		50-439
		STN 50-518
		STN 50-519
		STN 50-520
		STN 50-521
		STN 50-553
		STN 50-554
		STN 50-566
		STN 50-567

Enclosed for your information is a description of TVA's program which is directed at resolving the long standing Anticipated Transients Without Scram (ATWS) issue. TVA's program can be summarized as follows:

1. Acknowledge the risk of ATWS and implement modifications which we believe will reduce this risk.

2. Evaluate further additional modifications already defined to determine their overall safety benefits. Once a definite benefit is established, implement these changes.

3. As a part of our current and ongoing reliability and availability program, attempt to identify and evaluate other effective means to reduce challenges to safety systems by improving the reliability of secondary or turbine side systems.

4. Continue to follow and evaluate the work of NRC and others associated with mitigative fixes proposed for final resolution and participate as appropriate in the NRC rulemakings.

Mr. Harold R. Denton September 17, 1980

We currently anticipate that this program can be implemented at our Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants by 1985, and by fuel loading at Bellefonte, Hartsville, Phipps Bend and Yellow Creek Nuclear Plants. The sequence of events leading to the 1985 date for Browns Ferry includes development of criteria and conceptual designs between now and the end of 1981; detail design in 1982 and 1983; and implementation during scheduled outages for 1984 and early 1985. We believe that this implementation schedule is justified based on our overall appraisal of the safety significance of the ATWS issue relative to other work already scheduled or underway. In particular, as discussed with D. Eisenhut, et al., of your staff in a May 29, 1980, meeting, the modification schedule for Browns Ferry over the next several years is already extremely demanding, if not impossible. Any attempt to finalize ATWS modifications before the 1985 timeframe will have severe impacts on other programs and issues such as Mark I, TMI Lessons Learned, etc.

Please notify us and we will be pleased to meet with you at your convenience to discuss TVA's ATWS resolution program in detail.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills

L. M. Mills, Manager
Nuclear Regulation and Safety

Subscribed and sworn to before me this 17th day of Sept. 1980.

Paulette H. White
Notary Public

My Commission Expires 9-5-84

Enclosure

ENCLOSURE 1

TVA ATWS PROGRAM

The TVA staff program for resolving ATWS is as follows:

1. The TVA staff acknowledges that the risk associated with ATWS can be reduced via implementation of cost-effective modifications. The goal for such risk reduction is to bring the risk associated with ATWS within the range of risk identified for other low-probability events (i.e., severe earthquakes, tornadoes, etc.).

2. The TVA staff is proceeding to implement the program outlined in Table 1.0 at all of TVA's nuclear plants. This program is reasonable in cost and when implemented will yield a significant reduction in the risk associated with an ATWS event. The risk reduction is primarily attributable to reducing the probability of a failure to achieve a scram. The program will reduce the probability of severe consequences of an ATWS event to a value between 1×10^{-6}/RY and 5×10^{-6}/RY. This is within the same range of probability already accepted for high consequence low probability/high-consequence events such as a damaging tornado.

   The program will be implemented at Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants by the end of 1985 and at the remaining TVA plants by initial fuel loading. The 1985 implementation date is necessitated by the schedules for implementation of other modifications such as TMI Lessons Learned at these facilities.

3. Longer term, the TVA staff will expand existing reliability/availability programs to seek cost-effective means to reduce the challenges of safety systems in general by improving the reliability of the systems on the turbine-generator side of the plant. This not only reduces the probability of occurrence of an ATWS event, it also improves plant availability and performance while reducing the number of challenges to safety systems in general. Also, such studies have been recommended as a lesson from TMI.

TABLE 1.0

TVA ATWS PROGRAM

Plant	TVA Program Action
For All Plants	1. Install additional scram instrumentation to increase probability of scram.
	2. Evaluate existing containment isolation criteria to determine what changes, if any, would be needed to meet NRC ATWS requirements.
	3. Continue the evaluation of NRC-mitigative fixes through TVA work, Owners groups, and any NRC rulemaking proceedings.
For Boiling Water Reactor Plants (Browns Ferry, Hartsville, and Phipps Bend Nuclear Plants)	1. Install additional scram discharge volume.
	2. Evaluate existing recirculation pump trip to determine any needed modification to meet NRC requirements. Implement changes if needed.
	3. Develop conceptual designs and optimization studies for automation of the existing liquid poison injection system and the addition of a new high-capacity system.
	4. Evaluate setpoint changes on main steam isolation valve closure and implement if change results in an overall safety improvement.
	5. Evaluate addition of runback control on main feedwater and implement if change results in an overall safety improvement.

For Pressurized Water Reactor Plants (Sequoyah, Watts Bar, Bellefonte, and Yellow Creek Nuclear Plants)	1. Install circuits for auto trip of main turbine and auto initiation of auxiliary feed-water. 2. Identify instruments and evaluate their existing qualifications to meet ATWS pressure surge requirements. Implement requalification program if feasible. 3. Reevaluate PWR vendor pressure calculations.