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OCT 5 1976

Docket Nos. 50-390
 50-391

Tennessee Valley Authority
 ATTN: Mr. Cowlin Williams, Jr.
 Manager of Power
 630 Power Building
 Chattanooga, Tennessee 37201

Gentlemen:

EXTENSION OF LATEST COMPLETION DATES FOR CONSTRUCTION PERMITS NOS.
 CPPR-91 and CPPR-92

Latest completion dates for Construction Permits Nos. CPPR-91 and CPPR-92 for construction of Units 1 and 2 of Watts Bar Nuclear Plant have been extended to June 1, 1979, and March 1, 1980, respectively. Enclosed is a copy of the Order which has been transmitted to the Office of the Federal Register for publication.

This action involves no significant hazards consideration, good cause has been shown for the delay, and the requested extension is for a reasonable period, the bases for which are set forth in a staff evaluation which is also enclosed.

Sincerely,

Original signed by
 Steven A. Varga

S. A. Varga, Chief
 Light Water Reactors Branch 4
 Division of Project Management

Enclosures:

1. Order
2. Staff evaluation

ccs:

Listed on following page

*We agree that there
 some things which
 due to [unclear]*

OFFICE	LWR 4	LWR 4	DTR	OELD	LWR 4
SURNAME	MService:nc	CStahle	RTedesco	W.D. Paton	S.Varga
DATE	9/16/76	9/16/76	9/1/76	9/24/76	10/14/76

Tennessee Valley Authority

- 2 -

Herbert S. Sanger, Jr. Esq.
General Counsel
Tennessee Valley Authority
400 Commerce Avenue
Knoxville, Tennessee 37902

Mr. Dave Hopkins
U.S. Environmental Protection Agency
1421 Peachtree Street, N. E.
Atlanta, Georgia 30309

Mr. Jim Payne, Director
Office of Urban and Federal Affairs
1312 Andrew Jackson Building
Nashville, Tennessee 37219

The Honorable Dan Wade
County Judge
Rhea County Courthouse
Dayton, Tennessee 37321

TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-390 AND 50-391

ORDER EXTENDING CONSTRUCTION COMPLETION DATES

Tennessee Valley Authority is the holder of Construction Permits Nos. CPPR-91 and CPPR-92 issued by the Atomic Energy Commission* on January 23, 1973, for construction of the Watts Bar Nuclear Plant, Units 1 and 2, presently under construction at the Company's site in Rhea County, Tennessee.

On June 30, 1976, the Company filed a request for an extension of the completion dates because construction has been delayed due to:

- (1) Delays in opening bids,
- (2) Design difficulties caused by transient pressures,
- (3) Redesign of embeds and resultant slippage in delivery,
- (4) Increase of three feet in reactor building base slab thickness,
- (5) Increased erection time caused by change to heavier plate material.

This action involves no significant hazards consideration; good cause has been shown for the delay; and the requested extension is for a reasonable period, the bases for which are set forth in a staff evaluation dated October 5, 1976.

Copies of the above documents and other related material are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C., 20555, and at the Dayton Public Library, First Avenue, Dayton, Tennessee 37321.

IT IS HEREBY ORDERED THAT THE latest completion date for CPPR-91 is extended from August 1, 1976 to June 1, 1979, and the latest completion date for CPPR-92 is extended from May 1, 1977 to March 1, 1980.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by
D. B. Vassallo

D. B. Vassallo
Assistant Director for
Light Water Reactors
Division of Project Management

*Effective January 20, 1975, the Atomic Energy Commission became the Nuclear Regulatory Commission and Permits in effect on that day were continued under the authority of the Nuclear Regulatory Commission.

Date of Issuance:
October 5, 1976

EVALUATION OF REQUEST FOR EXTENSION
OF THE
CONSTRUCTION PERMITS FOR WATTS BAR NUCLEAR PLANT
UNITS 1 AND 2

Introduction

On July 3, 1976, a request for an extension of the completion dates for the construction of the Watts Bar facility was received from the Tennessee Valley Authority (TVA). The latest completion dates are estimated to be June 1979 for Unit 1, and March 1, 1980 for Unit 2.

Three major reasons, described below, are cited for the approximate 3-year delay in the construction schedule.

1. The applicant noted that an 18-month delay resulted from the impact of the court's decision in Calver Cliff's Coordination Committee vs U.S. Atomic Energy Commission. This decision delayed onsite construction activities as well as caused the diversion of manpower away from Watts Bar project in order to revise ongoing reviews of other higher priority projects.
2. An overall 18-month delay was also incurred due to containment system design changes and subsequent procurement of the steel containment vessels. A breakdown of this delay is as follows:
 - a. Design changes were made to the containment system as a result of requirements imposed by NRC in its Supplement No. 1 (November 1972) to the Safety Evaluation Report. Since the applicant had not at that time demonstrated the conservatism of the containment design, six additional margins of conservatism in the design were made to compensate for the existing uncertainties. On September 10, 1973, TVA submitted a report, Evaluation of Seismic Velocities in Lower Compartment, which demonstrates to our satisfaction that it is unnecessary to comply with one of the six additional margins, i.e., for mixture flow velocities in restricted flow region be maintained at levels less than approximately 3/4 of the seismic velocity for the flow mixture. It was shown that even though velocities in the present Watts Bar containment design exceed the staff's 75% of sonic velocity recommendation, this was of no consequence since flow choking in major vent areas does not represent a threshold in the rate of pressure increase. The rate of pressure rise is essentially linear before and after flow choking occurs. Accordingly, Criterion No. 5

in Section 3 of the supplemental report was deleted from the design criteria since it no longer constituted a meaningful requirement. The remaining requirements result in substantially higher containment pressures and redesign of the containment system was necessary. The project was delayed by a minimum of 6 months to complete this redesign effort.

- b. The procurement package for the steel vessels had to be withdrawn and reissued for bids because the design changes resulted in heavier, larger steel plates for the containment vessels. An estimated 8 months was lost in this transaction.
 - c. The containment design changes resulted in foundation modification (increased 3 feet in reactor building base slab thickness) and redesign of embeds. Approximately 4 months was estimated for this activity.
 - d. The heavier plate material for the containment vessels caused an increase in erection time of approximately 4 months.
3. Delays of 6 months in the delivery of principal piping, valves, and hangers have been incurred due to the inability of vendors to deliver on promised dates.

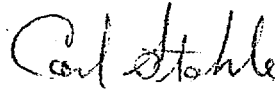
It is noted that the above delays are not totally additive because in a number of instances, the periods of delay overlap.

Conclusion

The NRC staff has reviewed the information provided by the applicant, and we conclude that the factors discussed above are reasonable and constitute good cause for delay. The extension of completion dates to June 1, 1979 for Unit 1 and March 1, 1980 for Unit 2 is justifiable.

As a result of our acceptance review of the Final Safety Analysis Report to date, considering the nature of changes and delays discussed above, we have identified no area of significant safety considerations in connection with this extension.

We conclude that this action does not involve a significant hazards consideration and that good cause exists for the issuance of an Order extending the completion dates.



Carl Stahle
Project Manager
Light Water Reactors Branch 4
Division of Project Management



S. A. Varga, Chief
Light Water Reactors Branch 4
Division of Project Management