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A. L. ...

December 22, 1972

Tennessee Valley Authority
 ATTN: Mr. James Watson
 Manager of Power
 818 Power Building
 Chattanooga, Tennessee 37401

Re: TENNESSEE VALLEY AUTHORITY
 Watts Bar Nuclear Plant, Units 1 and 2
 AEC Docket Nos. 50-390 and 50-391

Gentlemen:

The public hearings concerning radiological health and safety and environmental aspects of the facilities in the captioned matter have been completed and the presiding Atomic Safety and Licensing Board has issued its Initial Decision dated December 19, 1972. The Board, on the basis of its consideration of such aspects, has authorized the issuance of construction permits for these facilities. However, the time periods associated with certain procedural aspects of the Commission's antitrust review have not yet elapsed.

Your letter dated September 18, 1972, requested an exemption, pursuant to the provisions of Section 50.12 of 10 CFR Part 50, to permit certain work to be conducted on the Watts Bar Nuclear Plant prior to the issuance of construction permits by the Commission. The work for which the exemption is sought includes:

- general site clearing and grading
- excavation of the powerhouse building foundation, the intake channel and the pumping station
- erection of temporary construction facilities
- construction of a railway spur
- construction of holding pond dikes
- upgrading of existing dock facility
- cooling tower foundation tests

We have reviewed your request for an exemption under the provisions of Section 50.12 of 10 CFR Part 50 and the reasons set forth in support thereof. We have determined that the granting of an exemption for the work described in the request is authorized by law, will not endanger life or property or the common defense and security, and is otherwise in the public interest. The basis for this determination is set forth in the enclosed document entitled "Discussion and Findings by the Directorate"

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of Licensing, U. S. Atomic Energy Commission, Relating to a Request for an Exemption from Licensing for Certain Construction Activities at the Watts Bar Nuclear Plant, Units 1 and 2, AEC Docket Nos. 50-390 and 50-391." The Discussion and Findings considers your request in light of the record of the completed public hearings, including the Initial Decision of the presiding Atomic Safety and Licensing Board which authorized the issuance of construction permits for these facilities. A copy of a Federal Register notice entitled "Determination to Grant Exemption From Licensing for Certain Construction Activities at the Watts Bar Nuclear Plant Site" is also enclosed. This notice has been sent to the Office of the Federal Register for publication.

Accordingly, the Commission hereby authorizes you to perform the work as described in your September 18, 1972 letter. This exemption shall terminate upon the issuance of construction permits authorizing construction of the Watts Bar Nuclear Plant, Units 1 and 2.

It should be noted that the Commission has made no determination with respect to matters covered in Section 105c of the Act. And, in the event that the Commission determines that an antitrust hearing is required in connection with this application, the issuance of construction permits would be subject to the completion of the antitrust proceeding and the findings made therein. Accordingly, any construction pursuant to this exemption is performed entirely at the risk of the Tennessee Valley Authority.

Sincerely,

Original signed by A. Giambusso

A. Giambusso, Deputy Director
for Reactor Projects
Directorate of Licensing

Enclosures:

1. Discussion and Findings
2. Federal Register Notice

cc: Mr. Robert H. Marquis
629 New Sprinkle Building
Knoxville, Tennessee 37919

OFFICE ▶	<i>PS</i>	<i>PWR-12</i>	<i>AD/PWR</i>	<i>DD:RP</i>		
7701 SURNAME ▶	<i>PS Check:nlg</i>	<i>KKniel</i>	<i>RCI Young</i>	<i>AGiambusso</i>		
DATE ▶	12/22/72	12/22/72	12/22/72	12/ /72		

bcc: Mr. Walter Lambert, Director
Office of Urban and Federal Affairs
321 Seventh Avenue, North
Nashville, Tennessee 37219

Mr. Francis P. Jung, Acting Director
Division of Radiological Health
Tennessee Department of Public Health
727 Cordell Hull Building
Nashville, Tennessee 37219

Mr. Craig Roberts
Office of Radiation Programs
Environmental Protection Agency
Room 18-81, Parklawn Building
Rockville, Maryland 20852

Mr. Frank Redmond
Region IV
Environmental Protection Agency
1421 Peachtree Street, N. W.
Suite 300
Atlanta, Georgia 30309

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UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of)
)
TENNESSEE VALLEY AUTHORITY) Docket Nos. 50-390 & 50-391
)
(Watts Bar Nuclear Plant)
Units 1 and 2)

DETERMINATION TO GRANT EXEMPTION FROM LICENSING FOR CERTAIN
CONSTRUCTION ACTIVITIES AT THE WATTS BAR
NUCLEAR PLANT SITE

Pursuant to the provisions of 10 CFR §50.12 of the Atomic Energy Commission's (Commission) regulations, the Commission has granted an exemption from the requirements of 10 CFR §50.10(b) to the Tennessee Valley Authority (the applicant) for certain construction activities involving the Watts Bar Nuclear Plant Units 1 and 2 prior to a decision regarding the issuance of a construction permit.

In an application dated May 18, 1971, the applicant requested permits to construct two pressurized water nuclear power reactors, designated as the Watts Bar Nuclear Plant, Units 1 & 2, at the applicant's site on the Tennessee River in Rhea County, Tennessee. In accordance with the Atomic Energy Act and the Commission's regulations in 10 CFR Chapter 1, public hearings have been held in the captioned matter concerning radiological health and safety and environmental aspects of the proposed facilities. These hearings have been completed and the presiding Atomic Safety and Licensing Board has issued its Initial Decision

dated December 19, 1972, which, on the basis of its consideration of such aspects, authorizes the issuance of construction permits for these facilities. However, the time periods associated with certain procedural aspects of the Commission's antitrust review have not yet elapsed, although Notice of Receipt of Attorney General's Advice has been published in the Federal Register on December 19, 1972 (37 F.R. 27676), reflecting that the Attorney General found no antitrust problems which would require an antitrust hearing.

By letter dated September 18, 1972, the applicant requested an exemption from the provisions of 10 CFR §50.10(b) for certain construction activities at the proposed site prior to a decision regarding the issuance of a construction permit and provided the Commission with supporting information, including information on the environmental impact of the activities to be conducted under the exemption, if granted.

After consideration and balancing of the factors specified in 10 CFR §50.12 of the Commission's regulations, it has been determined that the work requested in the exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest and should be authorized. The granted exemption limits the work to be performed to general site clearing and grading, excavation of the powerhouse building foundation, the intake

channel and the pumping station, erection of temporary construction facilities, construction of a railroad spur, construction of holding pond dikes, upgrading of the existing dock facility, and certain cooling tower foundation tests.

The basis for granting this exemption is set forth in a document entitled "Discussion and Findings by the Directorate of Licensing, U.S. Atomic Energy Commission, Relating to a Request for an Exemption from Licensing for Certain Construction Activities at the Watts Bar Nuclear Plant, Units 1 and 2, AEC Docket Nos. 50-390/391," dated December 22, 1972. The applicant's letter of September 18, 1972, and referenced supporting information, relating to this request for an exemption, a letter from the Deputy Director for Reactor Projects, Directorate of Licensing, to the applicant dated December 22, 1972, granting the exemption, and the Discussion and Findings referred to above are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW, Washington, D. C. and the Dayton Public Library, First Avenue, Dayton, Tennessee 37321. Copies of the Discussion and Findings document may be obtained upon request addressed to the United States Atomic Energy Commission, Washington, D. C. 20545, Attention: Deputy Director for Reactor Projects, Directorate of Licensing.

Dated at Bethesda, Maryland this 22nd day of December, 1972.

FOR THE ATOMIC ENERGY COMMISSION:

A Giambusso
A. Giambusso, Deputy Director
for Reactor Projects
Directorate of Licensing

DISCUSSION AND FINDINGS BY THE

DIRECTORATE OF LICENSING

U. S. ATOMIC ENERGY COMMISSION

RELATING TO

A REQUEST

FOR AN EXEMPTION FROM LICENSING FOR CERTAIN CONSTRUCTION

ACTIVITIES AT THE

WATTS BAR NUCLEAR PLANT

UNITS 1 AND 2

AEC DOCKET NOS. 50-390 AND 50-391

DECEMBER 22 , 1972

The radiological health and safety, and environmental reviews of the Watts Bar construction permit application by the Commission's Regulatory staff have been completed, and the Safety Evaluation Report has been issued (August 28, 1972). The staff concluded that the facility can be constructed without undue risk to the health and safety of the public. The staff has evaluated the Final Environmental Statement (FES) prepared by TVA and has concluded that it meets applicable requirements and is adequate to support the issuance of construction permits. (A copy of the letter dated November 7, 1972, from Mr. Giambusso, Deputy Director for Reactor Projects, Directorate of Licensing, to Dr. Francis Gartrell, Director of Environmental Research and Development for TVA, setting forth the staff's conclusions, is attached as Appendix A.)

A public hearing required by the Atomic Energy Act and the Commission's regulations before the Atomic Safety and Licensing Board (ASLB) concerning the construction permit application, has been held. The Initial Decision of the Board carefully assessed the evidence in the proceeding with respect to health and safety issues as well as environmental considerations; independently considered the balance among the factors contained in the record; and concluded that the construction permits should be issued. A copy of the Board's decision is attached hereto as Appendix B.

In accordance with Commission regulations, however, the earliest date that the construction permits may be issued would be at the conclusion of the 30-day period following publication of Notice in the Federal Register of the Advice of the Attorney General concerning the antitrust aspects of the application. In the event that interested parties request an antitrust hearing the delay could extend beyond the 30-day period. Advice was received from the Attorney General in a letter dated December 11, 1972, and was published in the Federal Register on December 19, 1972. Thus, the earliest date on which the construction permits can be issued is January 18, 1973.

By letter dated September 18, 1972, pursuant to Section 50.12 of 10 CFR Part 50, the Tennessee Valley Authority requested an exemption from the licensing requirements of 10 CFR Part 50 to permit commencement of certain onsite construction work for the Watts Bar Nuclear Plant. The following activities are those for which an exemption is sought:

- general site clearing and grading
- excavation of powerhouse building foundation, intake channel and pumping station
- erection of temporary construction plant facilities
- construction of railway spur
- construction of holding pond dikes

- upgrading of existing dock facility
- cooling tower foundation tests

The applicant's letter of September 18, 1972, provided information in support of the exemption request. This included a description of the work to be undertaken, the resulting environmental impacts including the availability of redress, the effect of the activities upon subsequent adoption of alternatives, and the effect of construction delay on the public interest. In light of the status of this record, discussed above, applicant's pending exemption request under Section 50.12 of 10 CFR Part 50 remains appropriate for Commission consideration and disposition.

The Commission's regulation in 10 CFR Part 50, provides that the Commission may grant such an exemption upon reaching appropriate conclusions with respect to the following issues:

- (1) Whether conduct or continuation of the activities will give rise to a significant adverse impact on the environment and the nature and extent of such impact, if any;
- (2) Whether redress of any adverse environmental impact from conduct or continuation of the activities can reasonably be effected if necessary;
- (3) Whether conduct or continuation of the activities would foreclose subsequent adoption of alternatives; and

- (4) The effect of delay in conducting the activities on the public interest, including the power needs to be served by the proposed facility, the availability of alternative sources, if any, to meet those needs on a timely basis, and delay costs to the applicant and to consumers.

The character of the overall environmental impact of the entire facility is fully described in the FES, and the FES carefully considers alternatives to the construction of the Watts Bar facility as proposed. The record as a whole (FES, testimony, Initial Decision) in the construction permit proceeding demonstrates that the Watts Bar alternative was determined not to have an environmental impact greater than that of any of the other alternatives.

The overall project, including the costs and benefits thereof, was assessed and it was concluded that balancing the various factors warranted issuance of the construction permit.

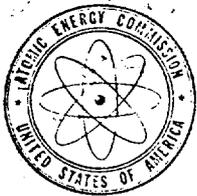
The activities covered by the exemption request constitute a small portion of the construction of the project as proposed and as analyzed in its entirety by the staff and the ASLB. Authorization of these actions would in no way prejudice the results of the environmental review required by NEPA and the Commission's regulations inasmuch as this review has been completed and such activities are entirely consistent with the

overall actions considered in such reviews. Neither would such authorization foreclose the consideration of any alternatives, since this consideration has already been completed, and as indicated above, no alternative was found to be superior to the alternative proposed. In view of the limited character of the activity covered by the exemption in the context of the overall project, there is, from an environmental standpoint, little adverse impact of the proposed limited construction activities for which the need for redress might ultimately be required. In any event, the applicant has indicated in its exemption request its commitment to expend the resources necessary to restore the site should redress be required.

Although the actual period of delay in the issuance of the construction permit cannot be determined accurately at this time, even if the delay is limited, undesirable consequences are likely to result. The applicant states that further delay in the Watts Bar operation schedule at this time jeopardizes the overall timetable for the plant and will result in sizable additional cost to TVA power consumers as well as considerable expenditure of coal and oil resources to replace the power.

Inasmuch as there are no reasons from the radiological health and safety, and environmental points of view to justify

further delay of the work described in the exemption request, and that further delay would effect the above-noted undesirable consequences, the Directorate of Licensing has determined that the exemption requested pursuant to 10 CFR Part 50.12 is authorized by law, will not endanger life or property or the common defense and security and is otherwise in the public interest and should therefore be granted.



ATOMIC ENERGY COMMISSION

WASHINGTON, D.C. 20545

November 7, 1972

Docket No. 50-300

Dr. Francis Gartrell
Director of Environmental Research
and Development
Tennessee Valley Authority
720 Edney Building
Chattanooga, Tennessee 37401

Dear Dr. Gartrell:

The Atomic Energy Commission's Regulatory staff has reviewed the proposed Final Environmental Statement for the Watts Bar Nuclear Plant, Units 1 and 2, which was prepared by TVA. The statement was reviewed to determine whether its content meets the guidelines set by the AEC for the preparation of its environmental statements and thus adequately deals with the subject matter in light of the experience gained in our preparation of such statements for other facilities. As a result of this review, it was noted that the treatment given to several topics was less complete than desirable. The areas so identified included:

- 1) degree of substantiation of need for power, availability of purchased power, and effect of not constructing the Watts Bar Plant;
- 2) degree of substantiation under alternatives of lack of feasibility of oil-fired plant based on long-term availability of fuel; and
- 3) consideration of such environmental impacts for alternative plant sites as effect on recreational use and aesthetics, and provision of data supporting comparison of site-related cost factors for alternate sites.

Dr. Francis Cartkell

-2-

November 7, 1972

As a result of a meeting held between AEC and TVA representatives on October 30, 1972, TVA has now provided further information supplementing the treatment of the above noted areas. With the addition of this material, we believe that the Watts Bar Environmental Statement satisfies applicable requirements and that it is adequate to support the licensing action.

Sincerely,

Original Signed By

A. Giambusso

A. Giambusso, Deputy Director
for Reactor Projects
Directorate of Licensing

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of The)	
)	
TENNESSEE VALLEY AUTHORITY)	Docket Nos. 50-390
)	50-391
(Watts Bar Nuclear Plant)	
Units 1 and 2))	

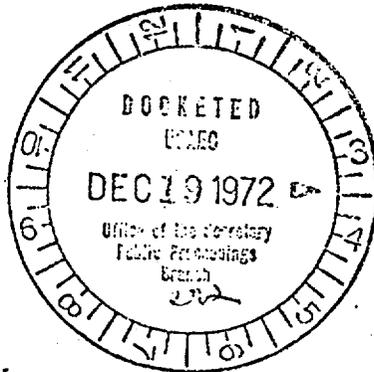
APPEARANCES

Lewis E. Wallace
David G. Powell
Alvin H. Gutterman

For Tennessee Valley Authority

Joseph Scinto, Esq.
Jeffery Silver, Esq.

For the Regulatory Staff of the
Atomic Energy Commission



UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

In the Matter of The
TENNESSEE VALLEY AUTHORITY
(Watts Bar Nuclear Plant
Units 1 and 2)

}
Docket Nos. 50-390
50-391

INITIAL DECISION

I. PRELIMINARY STATEMENT

1. This proceeding involves the application of the Tennessee Valley Authority ("Applicant") pursuant to Section 103 of the Atomic Energy Act of 1954, as amended ("Act"), for construction permits to construct two pressurized water reactors, each designed to operate initially at 3,411 megawatts (thermal), to be located at Applicant's 967-acre Watts Bar site on the western shore of Chickamauga Reservoir in Rhea County, Tennessee, approximately 8 miles southeast of Spring City, Tennessee.

2. The application dated May 14, 1971, and its 18 subsequent amendments are herein collectively referred to as the "Application." Environmental documents consisted of Applicant's draft detailed statement of

environmental considerations dated May 14, 1971, supplements and additions to the draft dated April 7, 1972, and a final environmental statement dated November 9, 1972. The latter is herein referred to as the "environmental statement."

3. The application was reviewed by the Regulatory Staff ("Staff") of the Atomic Energy Commission ("Commission") and the Advisory Committee on Reactor Safeguards ("ACRS"), both of which concluded that there is reasonable assurance that Watts Bar Nuclear Plant Units 1 and 2 can be constructed and operated at the Watts Bar site without undue risk to the health and safety of the public. (SSE, p. 17-2; SSE 1, pp. B1-B3.)^{1/} The Staff and ACRS reviews are discussed in the findings below.

^{1/} The following abbreviations are used in citations to documents incorporated in the record:
PSAR - Preliminary Safety Evaluation Report (Applicant's Exhibit 1)
FES - Final Environmental Statement (Applicant's Exhibit 2)
Watson - Testimony of James E. Watson (following Tr. 136)
ET - Applicant's Environmental Testimony (following Tr. 138)
Answers - Applicant's Answers to ASLB Questions (following Tr. 142)
SSE - Staff Safety Evaluation (following Tr. 182)
SSE 1 - Supplement No. 1 to SSE (following SSE following Tr. 182)

4. The draft environmental statement, the supplement to the draft, and the final environmental statement were reviewed by the Staff, and the Staff concluded that the environmental statement satisfies applicable requirements and is adequate to support the licensing action (FES, Preface).

5. In accordance with the requirements of the Act, a notice of hearing was published September 27, 1972 (37 Fed. Reg. 20191). An Atomic Safety and Licensing Board ("Board") was established (37 Fed. Reg. 23199), and a prehearing conference was held in Dayton, Tennessee, on November 6, 1972 (37 Fed. Reg. 23286). An evidentiary hearing open to the public was held in Dayton, Tennessee, on November 20, 1972 (37 Fed. Reg. 24132), to consider whether construction permits should be issued to the Applicant. No petitions for leave to intervene were filed in this proceeding; accordingly, the only parties to the proceeding were the Applicant and Staff. This is not a contested proceeding within the meaning of Section 2.104 and Appendix A of 10 CFR Part 2. The testimony of 22 witnesses was presented at the hearing (Tr. 125, 133, 156, 176).

6. Eight limited appearances were made in support of the application. (Tr. 98-118.) A statement of the Honorable Sterling Gregory, County Judge of Meigs County, Tennessee, was also read into the record (Tr. 121-23). There were no appearances or written statements in opposition to the Application.

7. Subsequent to completion of the evidentiary hearing, a letter dated November 21, 1972, and addressed to the Secretary, Atomic Energy Commission was received from John L. Wallborn, Grant Review Coordinator, Office of Urban and Federal Affairs, State of Tennessee. The letter describes the review of the application by the state agencies and sets forth opinion of the Tennessee Department of Public Health that "the Watts Bar Nuclear Plant can be operated without undue risk to the health and safety of the citizenry." The Board, by Order dated December 6, 1972, reopened the record for the purpose of admitting this letter as an additional limited appearance.

II. FINDINGS OF FACT

A. Health and Safety Aspects

1. Design and Site

8. The application contains a description of the site and the basis for its suitability, a detailed description of the proposed facility, including those reactor systems and features which are essential to safety, an analysis of the safety features provided for in the facility design, and an evaluation of various postulated accidents and hazards involved in the operation of such a facility and the engineered safety features provided to limit their effects. It also included a description of the technical qualifications of the Applicant, including those of its contractors, to design and construct the facility, and a description of the Applicant's quality assurance criteria and plans for the conduct of operations. (PSAR §§ 1 through 15 and Appendices.)

9. The record shows that Applicant has adequately described the proposed design of the facilities, including the principal architectural and engineering criteria for the design, and has identified the major features and components incorporated therein for the protection of the health and safety of the public, including:

(1) The design of the plant's major systems and components, which bear significantly on the acceptability of the facility at the proposed site under the site criteria guidelines identified in 10 CFR Part 100, has been analyzed and evaluated by the Applicant and the Staff. The design of the engineered safety features and the consequences of postulated accidents have been analyzed by the Applicant and evaluated by the Staff at the expected ultimate capacity of the facilities at 3,582 Mwt. (PSAR, § 14, SSE p. 1-1.) Both evaluations demonstrate that the criteria set forth in 10 CFR Part 100 will be complied with.

(2) Geological and seismological studies show that the Watts Bar site is located in a seismically stable region. Structures and equipment important to safety will be designed for the design-basis earthquake which has defined horizontal ground acceleration of 18 per cent of gravity. This is twice as severe as the design value for the operational-basis earthquake. (PSAR, § 2.9.2; SSE pp.2-16, App. D and E.)

(3) From a foundation standpoint, the site is generally suitable for the construction of the structures of the

facility. In connection with design of the cooling water intake channel and the diesel generator building, applicant is continuing studies of slope stability and soils liquefaction and will not commence work on these structures until the Staff has reviewed and approved results of the studies. (SSE, pp. 2-16, 2-17, 3-7, 3-8; Tr. 181, 207; PSAR § 2.8.)

(4) Detailed studies by the Applicant of river and ground water conditions show that neither normal nor accidental releases of radioactivity are expected to endanger drinking water supplies using the Tennessee River or ground wells in the vicinity of the Watts Bar site. (PSAR, § 2.7.2; FES, pp. 2.3-5, 2.10-2, 3; Tr. 160.) The Staff analyses support these conclusions. (SSE, pp. 2-13, 2-14.)

(5) Meteorological studies were initiated at the site beginning in June, 1972 (PSAR, § 2.6.3; FES, 1.1.3(6)). Analyses of preliminary meteorological data were made by both Staff and Applicant to evaluate diffusion of releases from the plant (SSE, 2-6; Answers, 14). With respect to short-term accidental releases, there is

almost exact agreement between Staff and Applicant. Staff's consultant, National Oceanographic and Atmospheric Administration (NOAA) has made an independent calculation of the relative concentration which, when corrected to the same site boundary distance as used by Staff and Applicant, is about half that calculated by Staff and Applicants (Tr. 196). With respect to the limiting annual average concentration estimate at the site boundary, values calculated by Staff and Applicant are in essential agreement (2.34×10^{-5} and 2.6×10^{-5} sec/m³, respectively) (Answers, 14; SSE, p. 2-6), although Staff states, apparently erroneously, that their value is "about a factor of two higher than the one calculated by the Applicant" (SSE, p. 2-6). NOAA, again, has calculated a somewhat lower value (1.4×10^{-5} sec/m³ at a lesser site boundary distance) (SSE, p. B-3). Considering the preliminary nature of the meteorological input data, these various values are considered to be within a reasonable range of agreement (SSE, pp. 2-6, 2-7; Tr. 196, 197; Answers, p. 14). Improved data will be available at the time of establishment of technical specifications (Tr. 197).

(6) Applicant's current flood protection measures are capable of coping with any credible combination of dam failure and storm-related flood. (Tr. 206.)

(7) The Applicant has provided an analysis demonstrating the ability of the ECCS design to meet the applicable requirements of the Commission's Interim Acceptance Criteria (PSAR, § 6.2; Tr. 200). The Staff concluded that the Applicant's ECCS design is in accordance with such criteria (SSE, pp. 5-15). The Applicant has agreed that it will keep the system design sufficiently flexible to comply with the requirements finally adopted by the Commission. This is consistent with the comments concerning improvements in the ECCS system by the ACRS in its letter of September 21, 1972. (Tr. 209, 210; Answers, p. 21.)

10. In the August 28, 1972, Staff Safety Evaluation the Staff concluded that the Watts Bar ice condenser containment system was acceptable and that the intent of General Design Criterion 50 had been met. (SSE, p. 5-1--5-8.) In Supplement 1 to the safety evaluation, the Staff indicated that later information had not provided

expected verification of the adequacy of the design margins. Accordingly, the Staff in Supplement 1 modified its previous position and proposed a further set of criteria to assure the adequacy of design margins. During the hearing, the Applicant amended its application to accept these additional criteria for the design of the Watts Bar facility (Tr. 161, 162). The Applicant and the Staff agreed that the Applicant would have the further opportunity to demonstrate, on the basis of its own studies or information developed by the Commission, that the additional criteria could be modified and that the Staff would review such information and consider approval of such modification if convincing evidence is presented. (Tr. 203-205.)

11. At the prehearing conference, November 6, 1972 the Board propounded to Applicant and Staff certain questions relating to health and safety issues (Prehearing Conf. Tr. 44-55). Applicant has answered those addressed to him. (Answers, pp. 1-39; Tr. 170-75.) Staff has answered those addressed to them and has agreed that Applicant's answers are acceptable and reasonable. (Tr. 185, 196-208.) The Board is satisfied with the responses to its questions.

12. While the record reflects ongoing investigations, including ongoing assessment of fuel densification, the Staff is of the opinion that such further information can reasonably be left for later consideration. (Tr. 205, 208, 213, 214.)

13. The Applicant has stated that the facility will be designed to comply with his understanding of the intent of the Commission's General Design Criteria set forth in 10 CFR Part 50, Appendix A, (PSAR 1.4-1) and has described and evaluated his methods of compliance (PSAR Appendix D and references therein). The Staff has found that the proposed design meets the intent of the General Design Criteria (SSE 3-1).

2. Technical Qualifications

14. The Westinghouse Electric Corporation will design and fabricate the two nuclear steam supply systems and furnish a complete core design and nuclear fuel supply for the initial cores. The Applicant will act as its own architect-engineer and constructor for the Watts Bar Nuclear Plant. The Applicant has extensive experience in the design and construction of nuclear powered

generating stations gained through its participation in early nuclear power studies following World War II, through its participation in the Experimental Gas-Cooled Reactor Project at Oak Ridge, and through the design and construction of Applicant's Browns Ferry and Sequoyah nuclear plants. (Watson, pp. 9-13; SSE, pp. 10-1--10-3; PSAR §§ 1.8, 1.9.)

15. The Staff concluded that, based on its review, the Applicant retains a technically competent engineering capability that can effectively manage, design, construct, and operate the facility. (SSE, pp. 10-1--10-3.)

3. Financial Qualifications

16. The Applicant is a corporate agency and instrumentality of the United States, created by the Tennessee Valley Authority Act of 1933, 48 Stat. 58, as amended, 16 U.S.C. §§ 831-831dd (1970). In carrying out its resources development activities under the TVA Act, Applicant, among other things, is engaged in the generation, transmission, and sale of electric energy. The Applicant plans to finance the cost of construction of the proposed facility as an integral part of its total power program.

The Applicant's power program is soundly financed and has adequate resources at its command for this undertaking. Funds required for design and construction of the Watts Bar plant will come from proceeds of the sale of bonds and notes and from available revenues of the power program. (Watson, pp. 14-16 and attached 1972 Power Annual Report; SSE, p. 16-1 and Appendix G.)

4. Common Defense and Security

17. The activities to be conducted under the construction permits will be within the jurisdiction of the United States and all of the directors and principal officers of the Applicant are United States citizens. The Applicant is not owned, dominated, or controlled by an alien, a foreign corporation, or a foreign government. (SSE, p. 15-1.)

18. The activities to be conducted do not involve any restricted data, but the Applicant has agreed to safeguard any such data which might become involved in accordance with the Commission's regulations. (SSE, p. 15-1.)

19. The Applicant will obtain fuel as it is needed from sources of supply available for civilian purposes, so that no diversion of special nuclear material for military purposes will be involved. The Staff has concluded that the activities to be performed will not be inimical to the common defense and security. (SSE, p. 15-1.)

5. Review by Staff and ACRS

20. The Staff review, performed both by Staff members and Commission consultants, consisted of a thorough independent evaluation of all of the technical information submitted by the Applicant concerning the proposed plant and of a comparison of the plant with similar plants and systems. Included in this comprehensive review was a study of the physical characteristics of the site and its environs, of the planned facility design (including the reactor components, the cooling system, the containment and engineered safety features, and radwaste systems), of the technical and financial qualifications of the Applicant to construct the facility, and of plans for the conduct of operations at the site.

In addition, quality assurance criteria were established for the Applicant, the effect of the operation of the plant on the common defense and security was studied, and consequences of various assumed accidents were calculated. The results of the Staff review are reflected in the Staff's Safety Evaluation issued August 28, 1972, and supplemented on November 17, 1972.

21. The Atomic Energy Commission's Advisory Committee on Reactor Safeguards (ACRS) conducted an independent review of the application. In a letter dated September 21, 1972, to the Chairman of the Commission, the ACRS identified items requiring further consideration, including improvements in the ECCS systems (discussed above), fuel densification considerations, ice condenser containment pressure analysis (discussed above), pipe whip protection, and effects of failure to scram on anticipated transients. The ACRS concluded that these matters can be resolved during construction and that, if due consideration is given to the identified items, the plant "can be constructed with reasonable assurance that it can be operated without undue risk to the health and safety of the public." (SSE 1, pp. B-1--B-3.)

B. Environmental Aspects

1. Applicability of NEPA; Final Environmental Statement

22. As a Federal agency, Applicant is subject to the requirements of the National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321 et seq. ("NEPA"). Pursuant to guidelines issued by the Council on Environmental Quality ("CEQ") and in accordance with Section 102(2)(C) of NEPA and Executive Order 11514, Applicant has established and made public agency procedures to implement the requirements of NEPA. (ET, p. 4.)

23. CEQ Guidelines (36 Fed. Reg. 7724) provide guidance as to appropriate arrangements for implementing the requirements of § 102(2)(C) of NEPA where more than one Federal agency is involved in an action requiring preparation of an environmental statement. In the case of the construction of Watts Bar Nuclear Plant, TVA is the Federal agency committing the government to the project. The environmental statement evaluates the entire project and no major or irreversible action has taken place or will take place prior to action by AEC

with respect to the application for a construction permit. (ET, p. 11.)

24. During the pendency of the proceeding, the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) were enacted. There was some discussion between the Board, the Staff, and Applicant concerning the impact of such legislation on the actions of the Board in this proceeding. In general, it was noted that there appeared no barrier to the Board's completion of its determinations in accordance with the Notice of Hearing and the Commission's rules. It was also noted that the Board may, in accordance with the Commission's rules, authorize the issuance of the appropriate construction permit, recognizing that no such permit would be issued by the Director of Regulation or his designees except in compliance with the requirements, if any, of the FWPCA as amended. (Tr. 74, 75, 77-81.) In this same connection, we note that the Applicant has indicated its recognition of its obligation and its intent to comply with applicable State or Federal water quality requirements. (Tr. 75, 81-83.)

25. Applicant conducted the environmental review and prepared the environmental statement pursuant to a lead agency agreement between Applicant and Commission. (ET, Ex. E-4.) Under these arrangements, TVA, as the agency committing the Federal Government to the project, conducted the environmental review and the environmental weighing and balancing at the various stages in project development with AEC review of TVA's environmental statement for compliance with various AEC guidelines. (Tr. 73.) TVA submitted its proposed final environmental statement to AEC prior to its issuance and prior to AEC's Notice of Hearing on the construction permit. (Tr. 74.)

26. In implementation of its NEPA procedures, Applicant used a systematic, interdisciplinary approach to decision-making in the planning of Watts Bar Nuclear Plant. (ET, pp. 1-3.) Experts in many fields of engineering, natural and social sciences and environmental design arts participated in the planning and design of the project in areas appropriate to their respective expertise. (ET, p. 1.) In addition, an interdisciplinary task force was established, which directed preparation

of the Final Environmental Statement, circulated that document within TVA for comment, and made a thorough review of the document with the assistance of experts from all concerned TVA program divisions (ET, p. 2).

27. In its environmental review of the Watts Bar Nuclear Plant, TVA consulted with the appropriate Federal, State, and local agencies and with the public by sending copies of a draft environmental statement and a supplement thereto to the appropriate Federal, State, and local agencies, by holding meetings with representatives of agencies of the State of Tennessee, and by making copies of the draft and supplement available to the public. (ET, pp. 6-10; FES, summary sheet, § 1.3.) All comments received on the draft and supplement were evaluated as part of Applicant's environmental review and were incorporated, with discussion and resolution where appropriate, into the final environmental statement. (ET, p. 5; FES, § 7.) No comments were received from members of the general public. (FES, § 7.)

28. AEC was one of the Federal agencies that gave TVA comments on its draft environmental statement,

particularly with respect to the radiological impact of plant operation and the environmental impact of radiological accidents (FES, § 7.1). On August 26, 1972, TVA sent to the AEC a preliminary draft of the Final Environmental Statement (ET, p. 12). This draft was reviewed by the Staff in accordance with the lead agency agreement. In the course of its review, the Staff determined that supplemental material should be furnished in the Final Environmental Statement (FES, Preface; Tr. 220). The supplemental material was included in the final version of the Final Environmental Statement and, with the addition of this material, the Staff concluded that the statement satisfies applicable requirements and that it is adequate to support the issuance of the construction permit (FES, Preface; Tr. 220, 221).

29. The Board finds that the Final Environmental Statement is a comprehensive evaluation of the various environmental considerations specified in 10 CFR Part 50, Appendix D, and in § 102(2)(C) of NEPA, and sets forth a careful evaluation of various alternatives to the proposed course of action. The record shows that the

Applicant has adequately described and considered such matters.

2. Impact of Construction

30. The Applicant has considered the unavoidable environmental impact to the site during construction. General clearing will eliminate 53 acres of woodland, but Applicant plans to avoid indiscriminate clearing and trees will be left standing to reduce visual impacts. (FES, p. 4.2-9.) Grading, excavation, and dredging will be conducted in a manner that will minimize siltation of the reservoir by use of techniques such as a suction dredge, settling ponds, dikes, berms, diversion dikes, check dams, sediment basins, fiber mats, netting, gravel, grasses, special drains, and other control devices. (FES, § 2.8.)

31. Solid wastes during construction will be disposed of by burning (in compliance with applicable regulations), sanitary landfill, sale of salvageable material, or collecting in containers and disposal by contract. (FES, § 2.8.) Sanitary wastes during construction will be handled by a temporary sewage treatment plant

and chemical toilets. Chemical cleaning operations will be conducted so as to minimize releases to the reservoir and to ensure that any chemicals released have been neutralized and diluted to concentrations substantially below harmful levels. (FES, § 2.8.)

32. Applicant will initiate a monitoring program to determine existing turbidity and siltation levels, to measure siltation rates and turbidity levels during construction, and, consequently, to minimize increases in levels due to construction effects. (FES, § 2.8.7.)

33. The plant will require approximately 3,165 acres of easements for transmission line right of way. Approximately 25 per cent is in woodland, 25 per cent is used for farming and pasture land, and the remainder is in uncultivated open land. Route selection is coordinated with municipal, county, and state planning boards and with municipal, state, and Federal authorities when crossing public land is involved. Final route selection will be made in keeping with the Department of Interior and Department of Agriculture publication entitled "Environmental Criteria for Electric Transmission Systems."

(FES, § 2.2.) Applicant will employ the shear clearing of transmission line right of way as being the most desirable from an environmental standpoint. (FES, § 2.2; Tr. 148-49.) The use by Applicant of extra high voltage lines reduces the amount of land required for right of way. (FES, § 2.2.) The transmission line connections will have some visual impacts, greater at reservoir crossings than overland. However, the overall visual impact associated with the plant, the cooling towers, and the transmission lines can be made acceptable at each of the alternative sites (discussed below). There appears to be no appreciable difference in overall visual impact associated with the Watts Bar site compared to the alternative sites (FES, § 4.2). Moreover, the Board finds on the record presented that while the transmission lines for the facility will cause some minor limitations in land use, it is unlikely that any significant permanent alterations in topography are involved.

34. The Board has considered the unavoidable impacts of construction and finds that the Applicant plans appropriate measures to minimize them.

3. Impact of Operations

35. The radiological effects of accidents on the environment have been assessed as required by the Commission's proposed guidance on preparation of environmental reports. The Applicant has concluded from his analysis that the environmental risks are exceedingly small (FES, § 2.3).

36. During routine operation of the plant, small quantities of radioactive materials will be released to the environment. These will contribute a small increment to the natural background radiation dose that area residents now receive. Since variations in the natural background may be expected to exceed the small increment of dose contributed by the facility, the incremental increase will be unmeasurable in itself and will constitute no meaningful risk. Taking into account direct radiation exposure, ingestion of radionuclides from food or water, and biological accumulation factors, there would be no meaningful risk from the extremely small incremental radiation dose from operation of the facility. (FES, §§ 2.4, 2.10, and Appendices E, F, G, and H.)

37. Treatment provided for radioactive liquids results in releases to unrestricted areas that are as low as practicable. (FES, § 2.4; SSE, § 9.1.) The Staff is in basic agreement with the Applicant's summary of the annual dose commitments to humans in Table 2.4-2 of the Final Environmental Statement, including Applicant's computation for projected I-131 dose to the thyroid. (Tr. 186, 187.) The Staff, however, has recently developed a position regarding one of the assumptions used in calculating iodine dose to the thyroid through the grass-cow-milk chain in order to meet the "as low as practicable" criterion. Calculations based on this new position indicate that the radiation dose for this isotope so computed exceeds by a small value the levels which would be associated with releases meeting the applicable criteria of "as low as practicable." However, there is no disagreement that the facility design criteria include the criterion that releases will be restricted to levels which are "as low as practicable" as required by the Commission's regulations. Similarly, there is no disagreement that Applicant will provide final detailed designs which would: (a) meet the requirements eventually resulting from the rulemaking proceeding

involving proposed Appendix I to 10 CFR Part 50 (RM 50-2); or, (b) in the absence of different requirements resulting from that proceeding, comply with the Staff's assessment of the "as low as practicable" requirements of the Commission's regulations in 10 CFR, Parts 20 and 50 (Tr. 187-195).

38. Alternative systems for reducing radioactive discharges were considered. Modifications were made to the liquid radwaste design originally proposed in order to provide for recycling of tritiated liquid and extended treatment of radioactive steam generator blow-down. (FES, § 2.4.) Alternatives considered for reducing gaseous radwaste included an increase from 45 days to 60 days holdup time, cryogenic distillation, gas absorption in a fluorocarbon solvent, and a hydrogen recombiner. The 60-day holdup was selected as the best alternative, evaluating cost, feasibility, and environmental considerations. (FES, § 2.4.)

39. Applicant has described the potential sources and amounts of nonradioactive discharges, including chemical discharges from various systems within the plant,

and discharges from the yard drainage system, transformers and electrical machinery, sanitary wastes, and normal solid waste disposal. The Applicant has computed these releases on a conservative basis and tabulated the results. These computations show that the impacts on the environment due to these discharges will be small. (FES, § 2.5.)

40. Alternative heat dissipation methods considered included once-through cooling, mechanical draft cooling towers, natural draft cooling towers, spray canal system, and cooling lake system. Once-through cooling, using the waters of Chickamauga Reservoir, was ruled out because of lack of engineering feasibility in view of the limited flows available (FES, § 2.6.4(1)). There was extensive treatment in the evidence of other cooling alternatives which showed that natural draft cooling towers are the most attractive method from the environmental and economic standpoint. (FES, § 2.6, Tr. 221.) The potential exists for infrequent occurrences of fogging and icing at short distances as a result of these cooling towers. (FES, § 2.6.) The maximum amount of makeup

water for the cooling towers is 172 ft.³/s; dissolved solids concentrated in cooling tower blowdown will be well within applicable stream standards; and chlorine added intermittently for biological control will not exceed 0.5 mg/l. These will not have a significant environmental impact (FES, § 2.5.1). The cooling towers and plumes will have a visual impact which would, however, be substantially the same at any alternative site where auxiliary cooling facilities are used. (FES, § 2.6; § 4.2.)

41. The Board finds that the Applicant has considered radioactive and nonradioactive releases from the plant under normal and accidental conditions. Suitable measures are planned to minimize such releases. Further, the Board finds that among the feasible heat dissipation alternatives, the natural draft cooling towers have the least adverse environmental impact. (FES, § 2.6.) As noted subsequently, the applicant has stated that it will meet applicable water quality standards. (Tr. 75, 81-83.)

4. Radiation Monitoring

42. Applicant will conduct a radiological and environmental monitoring program to establish baseline data prior to plant startup, in order to disclose any changes that may occur as a result of plant operation. These programs will be reviewed and coordinated with appropriate Federal, State, and local agencies. (PSAR, §§ 2.4, 2.7, and Appendix I.)

43. The Staff has concluded that Applicant's radiation and environmental monitoring will be adequate for monitoring the radiological impact of plant operation on the environs and assessing the health and safety aspects of the release of radioactivity to the environment from operation of the plant, and the Fish and Wildlife Service of the U. S. Department of Interior has reviewed the proposed monitoring and considers it adequate to protect fish and wildlife resources from significant damage. (SSE, §§ 9.4, 9.5, and Appendix F.)

44. The Board finds on the record presented that the Applicant has described adequate radiation and

environmental monitoring programs for the construction permit stage and that details of operational monitoring programs can reasonably be left for determination in connection with the operating license.

5. Transportation of Fuel and
Radioactive Waste

45. Any fuel or radioactive waste that is shipped to or from the site will be shipped in accordance with Commission regulations, requirements of the Department of Transportation, and applicable state regulations. (FES, § 2.1.) Under normal shipping conditions, no release of any radioactive materials will occur; and under the very severe accident conditions postulated, only slight releases are expected. The Applicant has estimated that if approximately 32,500 persons reside along an assumed 325-mile route over which irradiated fuel might be transported, these persons might receive, under normal conditions, an annual direct radiation dose of about 0.007 man-rem. (FES, § 2.1.2(2)(a).)

46. The Board finds that the transportation of new fuel to the facility or spent fuel and radioactive wastes from the facility will have insignificant impact on the environment under either normal or accident conditions.

6. Need for Power and Alternatives

47. The need for power on Applicant's system has been analyzed. (FES, § 1.2.) Applicant's forecasts and conclusions as to the need for additional generating capacity are supported by the Federal Power Commission (FES, § 7.12). The power from the Watts Bar facilities will be needed to satisfy TVA's obligations for supply of electrical power to meet demands, including the need for adequate reserves to assure an acceptable level of reliability (FES, § 1.2). Possible alternative means examined for furnishing the required generating capacity included the purchase of power, and construction of a gas-fired plant, an oil-fired plant, or a coal-fired plant. Upon analysis, it was determined that a coal-fired plant presented the only feasible alternative. As between a coal-fired plant and a nuclear plant, the nuclear plant offered the best choice both in terms of

economics and environmental impact. (FES, § 4.1.) The alternative of not constructing the plant was considered unacceptable in view of the Applicant's power needs and the inadequacy of the purchased power alternative. (FES, § 1.2.)

48. Seven alternative sites on Gunter'sville, Chickamauga, and Watts Bar reservoirs were considered by Applicant as a location for the Watts Bar units. After a study of environmental factors associated with each site, it was concluded that no significant physical characteristic would preclude location of the proposed plant on any of the sites studied, and that none of the other sites would be more suitable than Watts Bar. The Watts Bar site was selected because of more favorable access and close proximity to other TVA generating facilities. In addition, since more site-related data were already available on the Watts Bar site, it provided a more favorable leadtime. (FES, § 4.2.)

49. The Board finds that construction and eventual operation of Watts Bar Nuclear Plant is required for the Application to meet its forecast of electrical power

demands and that the selected site represents the optimum selection among those considered based on overall economic and environmental considerations.

7. Staff Evaluation

50. The Staff reviewed the alternatives considered by the Applicant and concluded that there were no identifiably feasible alternatives other than those treated by the Applicant in the Final Environmental Statement, and that, of those alternatives analyzed, none were superior to those actually selected by the Applicant (Tr. 221). In addition, the Staff conducted an independent evaluation of the section covering benefit-cost weighing and balancing (FES, § 8) and arrived at essentially the same conclusions as had the Applicant (Tr. 222-224). The Staff has concluded that Applicant's environmental statement complies with applicable requirements and is adequate to support the licensing action. (FES, Preface.)

8. Board Evaluation

51. The Board finds on the record in this proceeding that Applicant has employed an interdisciplinary

approach in the environmental review of the Watts Bar Nuclear Plant; that Applicant's procedures have insured that environmental factors have been given appropriate consideration in decisionmaking along with technical and other considerations, and that the Applicant's Final Environmental Statement contains consideration of alternatives to minimize environmental impacts and suitable environmental cost-benefit analysis, as required by Appendix D to 10 CFR, Part 50.

52. The Board, on the basis of the entire record, finds that the principal benefits and costs of the Watts Bar Nuclear Plant may be summarized as follows:

- (a) The benefits of the plant include the value of the needed electrical power to be generated and the potential for reduction of releases of combustion products to the atmosphere which would be associated with a fossil-fired station of equal capacity. Additional benefits derive from increased payments to local governments in lieu of tax payments, and the value as a stimulant

to the economic growth of the region by helping to assure an abundant supply of electrical power and increased employment potentials. Further indirect economic and social benefits can be expected to result from the recreational and educational value associated with visits to the plant.

- (b) In addition to the monetary costs, costs of the plant include the commitment of 967 acres of land for the lifetime of the plant; the rejection of about 1.56×10^{10} BTU/hr primarily to the air directly and to a small extent via the Chickamauga Reservoir from cooling tower blowdown; the consumptive use by evaporation of about 62 ft.³/s of water; some larval fish mortalities; some intermittent fogging which may effect nearby transportation; the construction of new transmission lines; minor releases of radioactivity to the air and to

Chickamauga Reservoir; erosion of soil during construction; a very low probability of releasing radioactivity due to an accident during the transport of radioactive materials. (FES, § 8.)

III. CONCLUSIONS

53. The Board has given careful consideration to all of the documentary and oral evidence in this proceeding.^{2/} Based on our review of the entire record in this proceeding and the foregoing findings and discussion, we conclude that the application and the record of the proceeding contain sufficient information, and the review of the application by the Staff has been adequate to support (1) the findings proposed to be made by the Director of Regulation as set out in the Notice of Hearing in this proceeding, and (2) the issuance of the construction permit proposed by the Director of Regulation.

^{2/} Subsequent to the close of the hearing, on December 7, 1972, the Board received Amendment 19 to the Application. This Amendment confirms certain commitments made by Applicant during the hearing (See Paragraph 10) and does not affect the Board's decision.

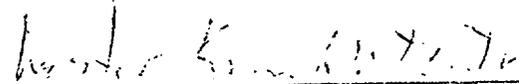
54. In accordance with Appendix D to 10 CFR Part 50 of the Commission's regulations, the Board also concludes as follows:

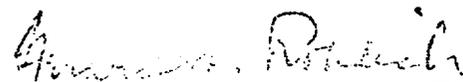
- A. The environmental review conducted by the Tennessee Valley Authority, pursuant to the National Environmental Policy Act of 1969, has been adequate.
- B. The Staff has conducted an independent review of the costs, benefits, and alternatives.
- C. The requirements of Section 102(2)(C) and (D) of the National Environmental Policy Act of 1969 and the applicable provisions in Appendix D of 10 CFR 50, considering that Applicant is an agency of the Federal Government and the "lead agency" under the guidelines of the Council on Environmental Quality, have been complied with in the proceeding.
- D. Upon independently considering the final balance among the factors contained in the record of the proceeding, the Board has determined that construction permits for the Watts Bar Nuclear Plant, Units 1 and 2 should be issued.

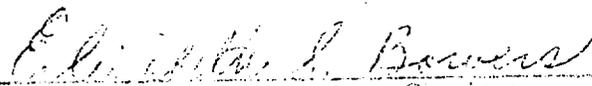
ORDER

Based on the Board's findings and conclusions and pursuant to the Atomic Energy Act and the Commission's regulations, IT IS ORDERED that the Director of Regulation is authorized to issue a construction permit to the Tennessee Valley Authority to construct the Watts Bar Nuclear Plant, Units 1 and 2, consistent with the terms of this initial decision, substantially in the form attached as Attachment A. IT IS FURTHER ORDERED, in accordance with 10 CFR 2.760, 2.762, 2.764, 2.785, and 2.786 of the Commission's Rules of Practice, that this initial decision shall constitute the final decision of the Commission subject to the review thereof pursuant to the above-cited rules.

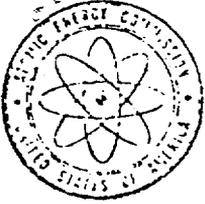
THE ATOMIC SAFETY AND
LICENSING BOARD


Lester Kornblith, Jr., Member

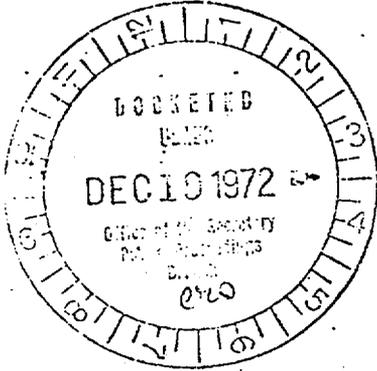

Gerard A. Schlich, Member


Elizabeth S. Bowers, Chairman

Issued at Washington, D.C.
this 19th day of December, 1972.



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545



TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT UNIT 1

DOCKET NO. 50-393

CONSTRUCTION PERMIT

Construction Permit No. CPPR-91

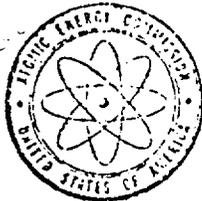
1. Pursuant to Section 103 of the Atomic Energy Act of 1954, as amended (the Act), and Title 10, Chapter 1, Code of Federal Regulations, Part 50, "Licensing of Production and Utilization Facilities," and pursuant to the Initial Decision of the Atomic Safety and Licensing Board, the Atomic Energy Commission (the Commission) hereby issues a construction permit to the Tennessee Valley Authority (the applicant) for a utilization facility (the facility), designed to operate at 3411 megawatts (thermal) described in the application and amendments thereto (the application) filed in this matter by the applicant and as more fully described in the evidence received at the public hearing upon that application. The facility, known as the Watts Bar Nuclear Plant, Unit 1, will be located on the applicant's site in Rhea County, Tennessee.
2. This permit shall be deemed to contain and be subject to the conditions specified in Sections 50.54 and 50.55 of said regulations; is subject to all applicable provisions of the Act, and rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the conditions specified or incorporated below:
 - A. The earliest date for the completion of Unit No. 1 of the facility is February 1, 1976, and the latest date for completion is August 1, 1976.
 - B. The facility shall be constructed and located at the site as described in the application, in Rhea County, Tennessee.
 - C. This construction permit authorizes the applicant to construct the facility described in the application and the hearing record in accordance with the principal architectural and engineering criteria set forth therein.

D. [Appropriate conditions, if any, imposed pursuant to Section 105 of the Act, as applicable.]

3. This permit is subject to the limitation that a license authorizing operation of the facility will not be issued by the Commission unless (a) the applicant submits to the Commission, by amendment to the application, the complete final safety analysis report, portions of which may be submitted and evaluated from time to time; (b) the Commission finds that the final design provides reasonable assurance that the health and safety of the public will not be endangered by the operation of the facility in accordance with procedures approved by it in connection with the issuance of said license; and (c) the applicant submits proof of financial protection and the execution of an indemnity agreement as required by Section 170 of the Act.

Dated at Bethesda, Maryland, this day of , 1972.

FOR THE ATOMIC ENERGY COMMISSION



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

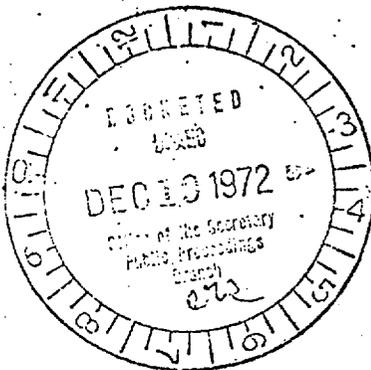
TENNESSEE VALLEY AUTHORITY

WATTS BAR NUCLEAR PLANT UNIT 2

DOCKET NO. 50-391

CONSTRUCTION PERMIT

Construction Permit No. CPPR-92



1. Pursuant to Section 103 of the Atomic Energy Act of 1954, as amended (the Act), and Title 10, Chapter 1, Code of Federal Regulations, Part 50, "Licensing of Production and Utilization Facilities," and pursuant to the Initial Decision of the Atomic Safety and Licensing Board, the Atomic Energy Commission (the Commission) hereby issues a construction permit to the Tennessee Valley Authority (the applicant) for a utilization facility (the facility), designed to operate at 3411 megawatts (thermal) described in the application and amendments thereto (the application) filed in this matter by the applicant and as more fully described in the evidence received at the public hearing upon that application. The facility, known as the Watts Bar Nuclear Plant, Unit 2, will be located on the applicant's site in Rhea County, Tennessee.
2. This permit shall be deemed to contain and be subject to the conditions specified in Sections 50.54 and 50.55 of said regulations; is subject to all applicable provisions of the Act, and rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the conditions specified or incorporated below:
 - A. The earliest date for the completion of Unit No. 2 of the facility is November 1, 1976, and the latest date for completion is May 1, 1977.
 - B. The facility shall be constructed and located at the site as described in the application, in Rhea County, Tennessee.
 - C. This construction permit authorizes the applicant to construct the facility described in the application and the hearing record in accordance with the principal architectural and engineering criteria set forth therein.

D. [Appropriate conditions, if any, imposed pursuant to Section 105 of the Act, as applicable.]

3. This permit is subject to the limitation that a license authorizing operation of the facility will not be issued by the Commission unless (a) the applicant submits to the Commission, by amendment to the application, the complete final safety analysis report, portions of which may be submitted and evaluated from time to time; (b) the Commission finds that the final design provides reasonable assurance that the health and safety of the public will not be endangered by the operation of the facility in accordance with procedures approved by it in connection with the issuance of said license; and (c) the applicant submits proof of financial protection and the execution of an indemnity agreement as required by Section 170 of the Act.

Dated at Bethesda, Maryland, this day of , 1972.

FOR THE ATOMIC ENERGY COMMISSION