



ACRS-2990

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
AD HOC WATTS BAR  
SUBCOMMITTEE MEETING MINUTES:  
NOVEMBER 1, 1995  
ROCKVILLE, MARYLAND

INTRODUCTION

The ACRS Subcommittee on Watts Bar met on November 1, 1995, at 11545 Rockville Pike, Rockville, Maryland, in Room T-2 B3. The purpose of the meeting was to review the Tennessee Valley Authority (TVA) application for an operating license for Watts Bar Nuclear Plant Unit 1 (Watts Bar). The entire meeting was open to public attendance. Mr. Noel Dudley was the Designated Federal Official for this meeting. The meeting was convened at 8:30 a.m. and adjourned at 4:45 p.m.

ATTENDEES

ACRS Members

- |                    |                       |
|--------------------|-----------------------|
| C. Wylie, Chairman | W. Lindblad, Member   |
| J. Carroll, Member | D. Powers, Member     |
| I. Catton, Member  | R. Seale, Member      |
| M. Fontana, Member | N. Dudley, ACRS staff |
| T. Kress, Member   |                       |

Principal Tennessee Valley Authority Speakers

- |            |            |
|------------|------------|
| J. Scalice | W. Elliott |
| M. Brickey | T. Cappelz |
| F. Koontz  | J. Adair   |
| D. Kehoe   | M. Medford |
| K. Brown   | M. Harding |

Principal NRC Speakers

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|----------------|-------------------|
| F. Hebdon, NRR | S. West, NRR      |
| J. Jaudon, RII | M. Snodderly, NRR |

Public Speakers

- |             |           |
|-------------|-----------|
| A. Harris   | D. Gunn   |
| J. Riccio   | P. Gunter |
| J. Honniker | F. Young  |

The Subcommittee received written comments and six requests for time to make oral statements from members of the public. A list of attendees is available in the ACRS office files.

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OPENING REMARKS BY THE SUBCOMMITTEE CHAIRMAN

Mr. Charles Wylie, Subcommittee Chairman, convened the meeting at 8:30 a.m. and noted that the written comments received from members of the public had been provided to each Subcommittee Member. Mr. Wylie stated that the purpose of the Subcommittee meeting was to review the TVA application for an operating license for Watts Bar and associated issues.

DISCUSSION OF AGENDA ITEMS

Tennessee Valley Authority Presentation

Mr. John Scalice, vice president Watts Bar, introduced the TVA staff and highlighted major milestones associated with the construction and licensing of Watts Bar. The TVA staff compared the design of Watts Bar with the design of the Sequoyah Nuclear Plants.

Mr. Walter Elliott, TVA, presented an overview of the fire protection program, thermo-lag fire barriers, fire barrier penetration seals, and the fire suppression water supply system. TVA plans to complete a fire probabilistic risk assessment in support of the Watts Bar Individual Plant Examination with External Events (IPEEE). The Subcommittee and the TVA staff discussed penetration seals, reliability of fire detection systems, the responsibilities of the fire brigade, the operability of a diesel generator in a carbon dioxide environment, and the inspection, testing, and installation of thermo-lag fire barrier.

Mr. Frank Koontz, TVA, explained the design of the containment hydrogen control system that would be used during severe accidents. The Subcommittee and the TVA staff discussed the engineering basis, the analyses, and the validation test programs for placement of the hydrogen igniters. Dr. Catton noted that recent German research reports did not support the use of hydrogen igniters.

Mr. Elliott described the physical and administrative controls that TVA uses to provide separation between Watts Bar units 1 and 2. TVA has no plans to install a security barrier between the units. The Subcommittee and the TVA staff discussed the involvement of operations personnel in developing the methods for unit separation and the housekeeping (e.g. storage of combustible material, accumulation of debris, routine compartments inspections) requirements for both units.

Mr. Elliott described the steam generator modification, the reactor vessel upper head injection system removal, and the reactor coolant

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system resistance temperature detector by-pass manifold removal. The Subcommittee and the TVA staff discussed the acceptable preheater inlet plenum flow used for accepting the steam generator design modification.

Mr. Mike Brickey, TVA, and the Subcommittee discussed the environmental stressors associated with the Eagle 21 digital reactor protection system. Mr. Elliott explained the monitoring program for the essential raw water system mortar lined pipes, which included uses of coupon samples in the cooling tower basin. The Subcommittee, the NRC staff, and the TVA staff discussed the adequacy of the monitoring program, failure mechanisms, and repair options.

Mr. Elliott presented the results of the Watts Bar probabilistic safety assessment (PSA), which included considerations of containment bypass, direct containment heating, and high pressure melt ejection. Mr. Frank Koontz, TVA, explained the differences between the results of the Watts Bar and Sequoyah PSAs. The Subcommittee and the TVA staff discussed the use of PSAs in planning shutdown operations, implementing the maintenance rule, and controlling on-line-maintenance activities. The Subcommittee, NRC staff, and TVA staff discussed the use of PSA information in training, maintenance activities, plant operations, and developing severe accident management strategies.

Mr. James Adair, TVA, explained the seismic margins evaluations performed for Watts Bar. The Subcommittee, NRC staff, and TVA staff discussed the methods for reporting to other licensees the resolution of identified equipment problems.

Mr. David Kehoe, TVA, provided a history of the construction quality assurance program including the stoppage of work in 1985 and 1990 due to identified quality assurance program weaknesses. Mr. Scalice explained how performance goals and indicators were developed and measured, and how corrective actions were monitored for effectiveness. The Subcommittee and TVA staff discussed how TVA corrected identified weaknesses in management, such as, poor approaches to problem solving, lack of adequate attention to employee concerns, short term emphasis, and failure to hold groups accountable to common goals. Mr. Kent Brown, TVA, explained the quality control problems associated with electrical cables and the actions taken to resolve such problems.

Mr. Tony Cappozzi, TVA, explained that the project for assurance of construction completion and assurance of quality (PAC/AQ) group, a team of mid-level managers, was responsible for overseeing and verifying the proper implementation of corrective actions and closure of documented employee concerns. Mr. Kehoe, concluded that

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the quality assurance program is effective and that TVA has reasonable assurance that Watts Bar construction meets regulatory requirements and commitments. The Subcommittee and TVA staff discussed the length of time considered for assessing sustained satisfactory performance.

Mr. Scalice explained the corporate and site organizational structures and the qualifications of managers. He noted that Watts Bar had established a Concerns Resolution Program, which he believes lets employees know they have a responsibility and an obligation to report safety concerns. Mr. Scalice stated that the organization encourages prompt and effective resolution of the concerns through line management. Mr. Mike Harding, manager of the Concerns Resolution Program, explained that three Concerns Resolution Program specialists work full-time at the site and receive occasional support from the corporate organization. The Subcommittee and the TVA staff discussed the training and experience of the Concerns Resolution Program specialists; employee training on management's expectations for teamwork, quality assurance, and safety concerns reporting; and main control room formality.

#### NRC Staff Presentation

Mr. Frederick Hebdon, NRR, introduced the NRC staff. Mr. Steven West, NRR, stated that the NRC staff subjected Watts Bar to a thorough and detailed review in the fire protection area and is completely satisfied with the Watts Bar fire protection program. Mr. Michael Snodderly, NRR, presented the NRC staff position on the adequacy of the engineering justification for placement and use of Hydrogen igniters in the Watts Bar containment.

#### Presentations by Members of the Public

Ms. Anne Harris introduced herself as an TVA employee. She stated that there is evidence that employees at TVA fear retribution for identifying safety issues to the TVA staff or the NRC staff. She also noted that the General Accounting Office had issued a report concerning TVA finances in relationship to deregulation of utility rates. Ms. Harris asked the ACRS to recommend that Watts Bar be denied an operating license until such time as the employees' fears are addressed.

Mr. James Riccio, staff attorney for Public Citizen's Critical Mass Energy Project, stated that the NRC substantiated a significant number of deficiencies at Watts Bar including lack of design verification, improper welding, damaged electrical cable, substandard replacement parts, faulty control room design, lack of

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seismic integrity, inadequate fire protection, and missing quality assurance records. He stated that the NRC Office of Investigations had concluded that TVA management had lied to the Commission. Mr Riccio noted that Watts Bar had received at least 15 notices for violation of NRC quality assurance requirements since February 1995. Mr. Riccio sighted the absence of an effective quality assurance program during the decades of construction at Watts Bar as a reason that the ACRS should recommend denying Watts Bar a license.

Mr. Paul Gunter, Nuclear Information and Resource Service, questioned the use of thermo-lag fire barrier material based on the results of hose stream test, identified internal voids, and known chemical inconsistencies. He also questioned the effectiveness of penetration seals formed after pulling additional electrical cables through a fire barrier penetration. The Subcommittee and Mr. Gunter discussed the applicability of fire test results.

Ms. Jeannine Honniker, a private citizen, asked that all of the TVA employees who had raised safety concerns prior to 1986 be given an opportunity to review TVA's resolution of their concerns, prior to issuance of a license. Ms. Doris Gunn, a private citizen, stated that she was uncomfortable accepting an increase in the amount of nuclear waste when there was no disposal method or site. Ms. Gunn appealed to the ACRS to consider children when making a recommendation on the Watts Bar operating license. Ms. Faith Young, a private citizen, asked that the ACRS recommend against licensing Watts Bar because of the contaminated silt in the Watts Bar reservoir, which the Department of Energy reported in DOE/02-1373&D3, "Record of Decision for the Lower Watts Bar Reservoir".

#### SUBCOMMITTEE RECOMMENDATIONS AND FOLLOWUP ACTIONS

The Subcommittee decided to draft a report for consideration by the full ACRS concerning its review of the TVA application for an operating license for Watts Bar.

The Subcommittee requested that the TVA staff present summary briefings at the ACRS meeting on November 2, 1995, on the following items:

- Fire protection program
- Radiation monitoring systems
- Eagle 21 digital reactor protection system
- Results of the Watts Bar Individual Plant Examination (IPE)
- Safety culture at Watts Bar
- Mortar lined essential raw water system pipes

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The Subcommittee requested that the NRC staff present the status of the licensing issues associated with the TVA license application and a briefing on the effectiveness of implementing the maintenance rule at Watts Bar.

Mr. Wylie adjourned the meeting at 4:45 p.m.

BACKGROUND MATERIAL PROVIDED TO THE SUBCOMMITTEE

- U. S. Nuclear Regulatory Commission, NUREG-0847, "Safety Evaluation Report Related to the Operation of Watts Bar Nuclear Plant, Unit 1 and 2," through Supplement 18, issued October 1995
- U. S. Nuclear Regulatory Commission, NUREG-1528, "Reconstitution of the Manual Chapter 2515 Construction Inspection Program for Watts Bar Unit 1," issued September 1995
- Letter dated October 26, 1982, from Paul Gunter, Nuclear Information and Resource Service, to Noel Dudley, Nuclear Reactors Branch, ACRS, Subject: Public Concerns With Fire Protection Issues at Watts Bar Nuclear Power Station
- Letter dated August 16, 1982, from Paul Shewmon, ACRS Chairman, to Nunzio Palladino, NRC Chairman, Subject: ACRS Report on Watts Bar Nuclear Plant, Units 1 and 2
- Memorandum dated October 24, 1995, from Noel Dudley, Nuclear Reactors Branch, ACRS, to ACRS Members, Subject: Subcommittee to Review Watts Bar License Application
- Memorandum dated December 9, 1994, from Stanley Schofer, ACRS Technical Secretary, to ACRS Members, Subject: Minutes for the November 3-4, 1994 ACRS Meeting
- Minutes of the ACRS Subcommittee Meeting on Watts Bar, held on August 10, 1982
- Minutes of the ACRS Subcommittee Meeting on Watts Bar, held on April 30, 1982

PRESENTATION SLIDES AND HANDOUTS

The presentation slides and handouts used during the meeting are on file and are available upon request.

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NOTE: Additional details of this meeting can be obtained from a transcript of this meeting available in the NRC Public Document Room, 2120 L Street, N.W., Washington, D.C. 20006, (202) 634-3274, or can be purchased from Neal R. Gross and Company Incorporated, Court Reporters and Transcribers, 1323 Rhode Island Avenue, N.W., Washington, D.C. 20005, (202) 234-4433.