

January 30, 2002

LICENSEE: Tennessee Valley Authority (TVA)

FACILITY: Watt Bar Nuclear Plant, Unit 1  
Sequoyah Nuclear Plant, Units 1 and 2

SUBJECT: SUMMARY OF THE NRC'S OCTOBER 2, 2001, PUBLIC MEETING IN  
EVENSVILLE, TENNESSEE, REGARDING TENNESSEE VALLEY  
AUTHORITY'S TRITIUM PRODUCTION LICENSE AMENDMENT REQUEST

On October 2, 2001, the U.S. Nuclear Regulatory Commission (NRC) held a public meeting to present an overview of the NRC's license amendment process and activities associated with the Department of Energy's (DOE's) program to produce tritium in Tennessee Valley Authority's (TVA's) Watts Bar and Sequoyah Nuclear Plants. Representatives from TVA and DOE gave presentations on their roles in this program. The meeting was held near the Watts Bar site, in the Rhea County High School Auditorium in Evensville, Tennessee. Approximately 35 members of the public attended, and there was significant media coverage.

Topics discussed included the following:

1) NRC's Presentation

- the U.S. Nuclear Regulatory Commission — who we are — what we do
- TVA's Watts Bar and Sequoyah license amendment requests to irradiate tritium-producing burnable absorber rods (TPBARs)
- status of NRC's review of TVA's amendment requests

2) DOE's and TVA's Presentations — Production of Tritium in TVA Reactors

Attachment 1 contains the NRC, DOE, and TVA presentation slides. The NRC, DOE, and TVA staff gave members of the public opportunities to ask questions and comment during and after each of the presentations. Attachment 2 contains responses to a number of questions that the NRC staff could not answer during the meeting because there was a need for additional information or further evaluation. Attachment 3 is the meeting agenda, and Attachment 4 is a list of meeting attendees.

During my NRC presentation, I said that the NRC's tritium website would be accessible to the public shortly. However, in light of the September 11, 2001, World Trade Center and Pentagon tragedies, the NRC has removed most of the nuclear plant information from its external website while it re-evaluates what information it will make available to the public in the future.

**/RA/**

L. Mark Padovan, Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-390, 50-327 and 50-328

Attachments: 1. NRC, DOE, and TVA presentation slides  
2. Questions and Answers  
3. Meeting Agenda  
4. List of Attendees

cc w/attachments: See next page

January 30, 2002

During my NRC presentation, I said that the NRC's tritium website would be accessible to the public shortly. However, in light of the September 11, 2001, World Trade Center and Pentagon tragedies, the NRC has removed most of the nuclear plant information from its external website while it re-evaluates what information it will make available to the public in the future.

**/RA/**

L. Mark Padovan, Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-390, 50-327 and 50-328

Attachments: 1. NRC, DOE, and TVA presentation slides  
2. Questions and Answers  
3. Meeting Agenda  
4. List of Attendees

cc w/attachments: See next page

DISTRIBUTION:

PUBLIC  
PDII-2 R/F  
MPadovan  
JZwolinski/LMarsh  
HBerkow  
RCorreia  
RHernan  
PFredrickson  
BClayton (Hard Copy)  
AHodgdon  
ACRS  
SRosenberg (e-mail)  
DMcCain  
FCameron  
JBartley  
RGibbs  
UBhachu

ADAMS ACCESSION NO. ML020230386 (Letter)

OFFICE	PDII-2/PM		PDII-2/LA		OGC		PDII-2/SC	
NAME	MPadovan		BClayton		AHodgdon		RCorreia	
DATE	1/30/02		1/30/02		1/28/02		1/30/02	

OFFICIAL RECORD COPY

## **NRC, DOE, and TVA Presentation Slides**

## Questions and Comments Presented by Members of the Public

### Comment:

The public needs better NRC notifications of such meetings.

### Reply:

The NRC's policy is to announce public meetings at least 10 days before the meeting date. Following this policy, the NRC's Lead Project Manager posted the required details of the meeting on the NRC's external website and noticed the meeting in four local newspapers (Dayton, TN — *The Herald News*; Spring City, TN — *Watts Bar Lake Observer*; Chattanooga, TN — *The Times Free Press*; and Sweetwater, TN — Monroe County/ Advocate-Democrat). Furthermore, Francis "Chip" Cameron, the NRC's meeting facilitator, personally talked with some key stake holders before the meeting. During the course of the meeting, the Lead Project Manager requested the meeting participants to leave their names on a list if they wanted to be personally informed about the future meetings on this topic.

### Comment:

An NRC inspection report (IR) stated that, three times the allowable-tritium effluent was released from Watts Bar over a 3-year period.

### Reply:

Our review of NRC IRs did not support this comment. The tritium releases at Watts Bar were a small percentage of the allowable limits specified in Title 10, *Code of Federal Regulations* (CFR) Part 50. The radiation doses and the amounts of activity from tritium released during 1997 at Watts Bar were approximately three times larger than that for 1996 due to the normal operational need to process large amounts of reactor coolant system water during the Unit 1 refueling outage. Although, the effluent releases for 1998 were even higher than in 1997, the contribution from tritium was less than 3 percent of the 10 CFR 50, Appendix I, limits.

Title 10 CFR Part 50, Section 50.36(a), requires licensees to submit radiological discharge reports to the Commission giving quantities of the principal radionuclides discharged to unprotected areas. Title 10 CFR Part 50, Appendix I, Section IIA, addresses the calculated annual quantity of all radioactive materials that are released from a nuclear power plant to unrestricted areas. Section IIA of that Appendix states that the annual release must not result in an estimated dose from liquid effluents in excess of 3 millirem (mrem) to the total body or 10 mrem to any organ for any individual in an unrestricted area.

DOE's tritium lead test assemblies (LTAs) were irradiated in the Watts Bar core from June 1997 to March 1998. NRC IR 50-390, 391/99-08, stated that Watts Bar had releases and corresponding radiological effluent discharges (which include tritium) as shown in Table 1 on the following page.

**Table 1 — Watts Bar Radioactive Liquid Effluent Releases  
for 1996 Through 1998**

Curies Released				Dose (mrem)	
Year	F&AP Effluent	<sup>3</sup> H Effluent	D&EG Effluent	Total Body (percent of regulatory limit)	Organ (percent of regulatory limit)
1996	0.05	223	3.30E-1	9.76E-4 (0.033%)	1.41E-3 (0.014%)
1997	1.32	639	7.73E-0	2.53E-1 (8.43%)	3.57E-1 (3.568%)
1998	0.23	713	1.14E-2	6.16E-3 (0.205%)	8.20E-3 (0.082%)

Key for Effluents

F&AP= fission and activation products

<sup>3</sup>H = tritium

D&EG = dissolved and entrained gases

The radiation doses and the amounts of activity released during 1997 at Watts Bar were approximately three times larger than those for 1996. The effluent releases for 1998 were higher than 1997, but the contribution from tritium isotope was less than 3 percent of the 10 CFR 50, Appendix I, Section IIA, limits. An analysis of the information in Table 1 indicates that the majority of the radioactive dose was due to fission and activation products rather than tritium.

The NRC's regulatory limits are 3 mrem to the total body or 10 mrem to any organ for any individual in an unrestricted area, as previously indicated. Thus, our search and review of NRC IRs did not support the claim that Watts Bar tritium effluent releases to the unprotected areas were three times the allowable. In fact, the releases were a small percentage of the allowable limits specified in the 10 CFR Part 50.

Comment:

There was a 20 percent increase in dose rate at Sequoyah for use of down-blended highly enriched uranium LTAs.

Reply:

The staff reviewed Framatome Cogema Fuel's Topical Report BAW-2328, "Blended Uranium Lead Test Assembly Design Report, July 1998," which contained the analyses for Tennessee Valley Authority (TVA) to insert a limited number of LTA's into the Sequoyah Unit 2 core. Page 2 of BAW-2328 stated that the increase in radiation exposure rates (not doses) associated with the blended fuel assemblies are estimated to be as much as 20 percent higher than the exposure rates for the standard uranium fuel assemblies. Potential exposure rates from the blended uranium LTAs do not necessarily equate with dose rate to humans. The LTAs and fuel assemblies were submerged under 20-23 feet of water during irradiation, movement to and from the reactor, and in storage in the spent fuel pool. This water shielded humans from LTA and fuel assembly radiation exposure and there was no evidence they received a 20 percent increase in dose.

The enrichment percentage and hence reactivity of a given LTA assembly may be higher than a similar given standard uranium fuel assembly. However, LTA enrichment never exceeded the maximum NRC-approved enrichment of 5.1 percent

Comment:

There are serious security problems at Watts Bar.

Reply:

The NRC is treating these issues as potential allegations and will evaluate them following the appropriate agency process.

Comment:

We want to have another public meeting early in the process because many people didn't know about this meeting.

Reply:

NRC will evaluate the need and benefit of holding another public meeting during the amendment review process and will notify interested parties and the public of its decision.

Comment:

A 1991 General Accounting Office (GAO) report says that commercial reactors can't be used for tritium production.

Reply:

NRC staff reviewed several GAO reports issued starting in 1991 pertaining to tritium production. A detailed study of these reports did not substantiate the claim that irradiating TPBARs in a commercial nuclear power plant was prohibited. Additionally, the Defense Authorization Act of

2000, passed in October of 1999, specifies that TVA is to produce tritium at Watts Bar and Sequoyah.

Comment:

We need local access to nuclear plant information, possibly at a local library.

Reply:

Although the NRC no longer supports local Public Document Rooms (PDRs), they do maintain a publicly-available website that contains information on commercial nuclear power plants. Additionally, the public has access to the main PDR, either by internet, telephone or mail. However, the NRC is actively addressing the issue of how to balance national security interests with public information needs following the September 11, 2001, tragedies. The scope of this evaluation includes having information related to nuclear facilities publicly available. Members of the public are encouraged to visit the NRC website to access information as it is made available during the agency's review. Publicly-available records will be accessible electronically from the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the Internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS, should contact the NRC PDR Reference staff by telephone at 1-800-397-4209, 301-415-4737 or by e-mail to [pdr@nrc.gov](mailto:pdr@nrc.gov).

Comment:

We need additional time to make comments on the Watts Bar and Sequoyah tritium license amendment requests *Federal Register* notices.

Reply:

Title 10 CFR Part 50, Section 90.51, provides for public comment within 30 days of the issuance of a *Federal Register* notice. Requests for additional time would have to be sent to the Commission for consideration.



AGENDA  
U.S. NUCLEAR REGULATORY COMMISSION PUBLIC MEETING  
OCTOBER 2, 2001

NRC RESPONSIBILITIES IN REGARD TO THE POTENTIAL PRODUCTION OF  
TRITIUM AT THE WATTS BAR NUCLEAR REACTOR

The focus of tonight's meeting is on the **U.S. Nuclear Regulatory Commission's** (NRC) responsibilities in regard to the potential production of tritium at the Watts Bar nuclear reactor. However, in order to provide some context for the discussion, the U.S. Department of Energy (DOE) will provide a short status report on the DOE program. In addition, the TVA will discuss some of the site specific aspects of the TVA license amendment application. The NRC, DOE, and TVA presentations will be **brief**, with the objective of providing the maximum amount of time for audience questions and comments.

6:30 P.M.      Welcome, Format, Ground rules

Francis ("Chip") Cameron, Facilitator

6:45 P.M.      Status of the DOE Tritium Production Program

Steve Sohinki  
Director  
Office of Tritium Production  
National Nuclear Security Administration  
U.S. Department of Energy

Discussion

7:15 P.M.      NRC Responsibilities and Procedures in Regard to the Production of Tritium at the Watts Bar and Sequoyah Nuclear Power Plants: The Watts Bar License Amendment Application

Mark Padovan  
Licensing Project Manager for the Watts Bar Nuclear Plant  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission

Discussion

8:15 P.M.      Site Specific Aspects of the Watts Bar License Amendment Application

James Chardos  
TVA

Discussion

9:00 P.M.      Discussion of any remaining issues

9:30 P.M.      Adjourn

NRC's October 2, 2001, Public Meeting in Evensville, Tennessee  
Regarding DOE's Tritium Production Program

List of Attendees

<u>NAME</u>	<u>AFFILIATION</u>
Steve Sohinki	DOE
Jim Chardos	TVA
Mark Padovan	NRC/NRR
Herbert Berkow	NRC/NRR
Richard Correia	NRC/NRR
Ronald Hernan	NRC/NRR
Chip Cameron	NRC/OGC
Phil Haris	TVA
Paul Pace	TVA
Gerald Sorensen	Pacific NW National Lab.
Tim Mellen	OREPA*
Erik Johnson	OREPA*
Shelly Kirchner	<i>The Herald News</i>
Annette Gould	<i>Watts Bar Lake Observer</i>
Ann Harris	Local Resident
Howard Gilliam	Local Resident
Herb Snell	Local Resident
Mary Drinkard	Local Resident
Gary Drinkard	Local Resident
Patty Fagan	Local Resident
Bob Nordyke	Local Resident
Jean Smith	Local Resident
Gerry Kibildis	Local Resident
Mark Hammon	Local Resident

About 19 unidentified members of the public also attended.

\*Oak Ridge Environmental Peace Alliance

Mr. J. A. Scalice  
Tennessee Valley Authority  
cc:

Mr. Karl W. Singer, Senior Vice President  
Nuclear Operations  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Jon R. Rupert, Vice President (Acting)  
Engineering & Technical Services  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. William R. Lagergren, Site Vice President  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Spring City, TN 37381

Mr. Richard T. Purcell  
Site Vice President  
Sequoyah Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Soddy Daisy, TN 37379

General Counsel  
Tennessee Valley Authority  
ET 11A  
400 West Summit Hill Drive  
Knoxville, TN 37902

Mr. Robert J. Adney, General Manager  
Nuclear Assurance  
Tennessee Valley Authority  
6A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Mark J. Burzynski, Manager  
Nuclear Licensing  
Tennessee Valley Authority  
4X Blue Ridge  
1101 Market Street  
Chattanooga, TN 37402-2801

Mr. Pedro Salas, Manager

**SEQUOYAH NUCLEAR PLANT  
WATTS BAR NUCLEAR PLANT**

Licensing and Industry Affairs  
Sequoyah Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Soddy Daisy, TN 37379

Mr. D. L. Koehl, Plant Manager  
Sequoyah Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Soddy Daisy, TN 37379

Senior Resident Inspector  
Sequoyah Nuclear Plant  
U.S. Nuclear Regulatory Commission  
2600 Igou Ferry Road  
Soddy Daisy, TN 37379

County Executive  
Hamilton County Courthouse  
Chattanooga, TN 37402-2801

Mr. Paul L. Pace, Manager  
Licensing and Industry Affairs  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Spring City, TN 37381

Larry S. Bryant, Plant Manager  
Watts Bar Nuclear Plant  
Tennessee Valley Authority  
P.O. Box 2000  
Spring City, TN 37381

Senior Resident Inspector  
Watts Bar Nuclear Plant  
U.S. Nuclear Regulatory Commission  
1260 Nuclear Plant Road  
Spring City, TN 37381

Rhea County Executive  
375 Church Street  
Suite 215  
Dayton, TN 37321

County Executive  
Meigs County Courthouse

Mr. Lawrence E. Nanney, Director  
Division of Radiological Health  
Dept. of Environment & Conservation  
Third Floor, L and C Annex

401 Church Street  
Nashville, TN 37243-1532

Ms. Ann P. Harris  
341 Swing Loop Road  
Rockwood, Tennessee 37854

Dr. Gary Drinkard  
340 Drinkard Dr.  
Spring City, TN 37381

Mr. Erik Johnson  
108 E Goddard Ave.  
Maryville, TN 37803

Ralph Hutchison  
Oak Ridge Environmental  
Peace Alliance  
PO Box 5743  
Oak Ridge, TN 37831

Mr. Tim Mellen  
Oak Ridge Environmental  
Peace Alliance  
PO Box 5743  
Oak Ridge TN 37831

Ms. Mary Dennis Lentsch  
10992 Apison Pike  
Apison, TN 37302

Ms. Shelly Kirchner  
304 Marshall Dr.  
Spring City, TN 37381

Ms. Patty Fagan  
4995 Blytte Ferry Rd.  
Dayton TN 37321

Ms. Jean Smith  
384 Evergreen Rd.  
Dayton TN 37321

Annette M. Gould  
Watts Bar Lake Observer Newspaper  
504 Lakewood Village Rd.  
Spring City, TN 37381

Mark Hammon  
401 Church Street  
Nashville, TN 37219-2213

Gerald Sorensen  
2102 Austin Ct.  
Richland, WA 99352

Ms. Vickie G. Davis  
TDEC-DOE Oversight Division  
761 Emory Valley Road  
Oak Ridge, TN 37830-7072