OCT 24 1989

Official Copy

Mr. Oliver D. Kingsley, Jr.
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Dear Mr. Kingsley:

SUBJECT: MEETING SUMMARY - WATTS BAR NUCLEAR PLANT
DOCKET NOS. 50-390 AND 50-391

This letter refers to the meeting conducted at our request at the Watts Bar site on October 11, 1989. The purpose of the meeting was to discuss plans for the training and testing of Watts Bar operators prior to licensing of Unit 1.

It is our opinion that this meeting was beneficial and provided a better understanding of the issues.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 1, Title 10, Code of Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this letter, please let us know.

Sincerely,

(Original signed by A. Ignatonis)

Bruce A. Wilson, Assistant Director
for Inspection Programs
TVA Projects Division
Office of Nuclear Reactor Regulation

Enclosures:
1. List of Attendees
2. Meeting Agenda
3. Meeting Summary
4. Handout - Watts Bar Nuclar Plant
Operator Training Status and Plans

IA—

cc w/encls: (See page 2)

IE45

cc w/encls:
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Honorable Robert Aikman
County Judge
Rhea County Courthouse
Dayton, TN 37321

Honorable Johnny Powell
County Judge
Meigs County Courthouse
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Dr. Henry Myers, Science Advisor
Committee on Interior and
Insular Affairs
U. S. House of Representatives
Washington, D. C. 20515

cc w/encls: (continued on page 3)

cc w/encls: (continued)
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B. D. Liaw, NRR
S. C. Black, NRR
R. C. Pierson, NRR
K. P. Barr, NRR/RII
J. Rutberg, OGC
M. S. Callahan, GPA/CA

NRC Resident Inspector
U.S. Nuclear Regulatory Commission
Route 2, Box 700
Spring City, TN 37381

RII:NRR	RII
KBarr:vyg	TPeebles
10/30/89	10/23/89

ENCLOSURE 1

LIST OF ATTENDEES

NRC

R. Auluck, Senior Project Manager for TVA Projects, NRR
K. Barr, Section Chief, TVA Inspection Programs, NRR
S. Black, Assistant Director Projects, TVA Projects Division, NRR
C. Casto, Section Chief, Operator Licensing, Region II
T. Peebles, Branch Chief, Operational Programs Branch, Region II
K. Perkins, Acting Division Director, Reactor Safety, Region II
B. Wilson, Assistant Director for Inspection Programs, TVA Projects Division, NRR

TVA

G. Frazier, Manager, Watts Bar Training
W. Hastie, Manager, Watts Bar Plant
L. Jackson, Manager, Watts Bar Operations
J. Johnson, Manager, Nuclear Training
J. Landrum, Quality Assurance
D. McCloud, Site Licensing Manager
S. McNair, Requalification Supervisor, Watts Bar
C. Noe, Manager, Accreditation Training
J. Price, Operations Superintendent, Watts Bar
C. Touchstone, Licensing Engineer
H. Voiles, Acting Manager, Operations Training
A. White, Simulator Training Specialist
R. Wilson, Vice President, New Projects

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
OCTOBER 11, 1989, 1:00 P.M.

I. Opening Remarks — NRC

II. Issues — NRC/TVA

A. TVA discuss current activities and future plans for training operators prior to licensing of Watts Bar Unit 1.

B. NRC describe current plans for testing of Watts Bar operators prior to Unit 1 licensing

III. Closing Remarks

ENCLOSURE 3

MEETING SUMMARY

Mr. K. G. Frazier, Watts Bar Training Manager, provided a description of the past operator training activities and their present plans for future training. Enclosure 4 is the handout used in his discussion.

Kenneth Perkins, Acting Director, Division of Reactor Safety, presented the NRC staff position with regard to renewal of the existing operator licenses at the Watts Bar site. The stated actions are based upon Tennessee Valley Authority's (TVA) adherence to their schedule as outlined in this meeting. Mr. Perkins emphasized the need for the licensee to develop and fully implement a requalification program which conforms to the guidelines established in NUREG-1021, Operator Licensing Examiner Standards, ES-601 Requalification Program. The NRC will verify conformance to this Standard by a training inspection to be conducted during the first quarter of 1990. Based upon satisfactory results of this inspection, the staff will proceed with plans for requalification examinations for all licensed operators. The staff intends to audit the requalification examinations given by the licensee, which will provide NRC observation of all licensed operators, and to conduct a Requalification Program Evaluation in accordance with NUREG-1021, ES-601 at the conclusion of the 10 week training cycles in 1990 as scheduled by TVA. During the period following a satisfactory audit and prior to startup, the staff will evaluate whether to conduct operational assessments of the operating crews prior to plant startup. Should the schedule slip for a significant period (approximately one year) the staff will conduct operational assessments of all the crews prior to startup.

Should the Requalification Program Evaluation result in an unsatisfactory rating, the staff will take measures, as outlined in NUREG-1021 ES-601, to monitor the corrective action program and then reassess the operators and the requalification program.

Mr. Perkins also stated that beginning in 1991 regularly scheduled requalification examinations and program evaluations will be conducted by the staff to renew operator licenses in accordance with the requirements in 10 CFR 55.59 Requalification.

ENCLOSURE 4

TVA HANDOUT ON WATTS BAR NUCLEAR PLANT
OPERATOR TRAINING STATUS AND PLANS

Watts Bar Nuclear Plant

Operator Training

Status and Plans

October 1989

L. L. Jackson
Operations Manager

J. M. Price
Operations Superintendent

K. G. Frazier
Training Manager

H. J. Voiles
Operation Training

WBNP Operator Training (Overview)

- **LICENSED PERSONNEL**
  - Training Provided to Initial Licensees
  - Training Staff Experience
  - Initial Licensed Personnel
  - Operating Shift Experience of Planned Crews
  - Training Actions Since 1985
  - Training Planned Now to Fuel Load
    - Special Emphasis Areas
    - Lessons Learned
    - Approach to Training Development
  - Requal Exam Schedule

- **INITIAL LICENSED CANDIDATES**
  - Training Since 1985
  - Training Planned
  - Requested Initial Exams

Training Provided to Personnel Prior to Initial Licensing

- All personnel licensed in 1983, 1984, 1985 received Post TMI Cold License Training

Included:

Mitigation of Core Damage

Thermodynamics

Heat Transfer & Fluid Flow

Radiological Emergency Plan & Implementation

Pressurized Thermal Shock

New Philosophy in Use of Procedures

Observation Training at Same Type Nuclear Plant

Onsite Systems Training

Simulator Training for Four Loop Westinghouse Reactor Plants

Small Reactor Training

TRAINING STAFF EXPERIENCE

- 7 SRO Current Licenses
- 9 Previously Held SRO Licenses
- 8 Plants Experience
- 160 Years of Nuclear Experience
- 55 Years of Training Experience

Personnel Receiving License
1983 - 1985
Still Remaining at Watts Bar

1983	5 SRO	0 RO
1984	25 SRO	12 RO
1985	2 SRO	2 RO
Total	32 SRO	14 RO

(CURRENT 10/6/89) Operating Shift Experience (Operating Crews Planned)
(TO BE REVISED BY 10/25/89)

Crew	Position	Power Plant Experience (yr)	Nuclear Experience (yr)	License	> 20% Power (Y/N)	Hot Startup/ Shutdown (Y/N)	6 Months on Shift (Y/N)
Required by Generic Letter 84-16	Shift Supv. SRO Operator License Oper. License Oper.	4 3 3 3	2 2 1 1	SRO SRO RO RO	6 Wk 6 WK	Y	Either SRO
CREW 1	SOS ASOS RO RO CREW	9.66 9.58 7.66 10.33 37.23	9.66 9.58 7.66 7.33 34.23	SRO SRO RO RO	Y Y	N Y	N Y ●
CREW 2	SOS ASOS RO RO CREW	15.16 16.16 7.25 10.25 48.82	9.16 16.16 7.25 10.25 42.82	SRO SRO RO RO	Y Y	Y Y	N Y
CREW 3	SOS ASOS RO RO CREW	9.25 10.25 7.66 6.75 33.91	9.25 10.25 7.66 6.75 33.91	SRO SRO RO RO	Y Y	Y Y	N Y
CREW 4	SOS ASOS RO RO CREW	15.41 10.25 9.91 8.33 43.9	14.25 10.25 9.91 8.33 42.74	SRO SRO RO RO	Y Y	Y N	N Y ●
CREW 5	SOS ASOS RO RO CREW	19.91 16.83 10.16 7.66 54.56	17.00 16.83 10.16 7.66 51.65	SRO SRO RO RO	Y Y	Y Y	Y Y
CREW 6	SOS ASOS RO RO CREW	10.16 7.66 9.66 10.66 38.14	10.16 7.66 9.66 7.33 34.81	SRO SRO RO RO	Y Y	Y Y	Y N

Training Activities Since 1985

Requal Program

1984	4 Weeks/year	2 Sim @ POTC	2 Classroom
1985	4 Weeks/year	2 Sim @ POTC	2 Classroom
1986	6 Weeks/year	2 Sim @ POTC	4 Classroom
1987	6 Weeks/year	2 Sim @ POTC	4 Classroom
1988*	6 Weeks/year	1 Sim @ POTC 4 Sim @ WBN	1 Classroom
1989	6 Weeks/year	6 Simulator/Classroom @ WBN	

* Began using WBN plant specific simulator May 88

- Note: Simulator training weeks consist of 4 hours sim and 4 hours classroom training each day
- Annual written & operating exams administered
- 1988 and 1989 annual exams used ES-601 format
- Requal curriculum developed using 10CFR55 guidelines

Training Activities Since 1985

- **Ongoing Activities**

1985 - 1986	- Systems Preop, checkout, normal operations alignment maintained. - Cold Hydro, Hot Functional Testing - Used procedures for plant operation
1987 - 1989	- Supplied SQN with RO/SROs - Worked on shift to maintain plant, wrote procedures, performed system walkdowns - Worked with Nuc Engineering to validate WBN system prints - Assisted in CRDR effort. - Rewriting EOIs, FRIs, SOIs, GOIs from Westinghouse Rev.1 to Rev 1A

- **Other Enhancement Training**

  - All licensed personnel will have spent 2 weeks in observation at SQN before WBN fuel load

  - Six SROs spent 3 months at McGuire Nuclear Plant to enhance crew experience on shift

Future Training Discussion

- This plant has been in lay up for 2-3 years

- Hot Functionals are due to start in early fall and most training needs to be complete
  - lots of work involved
  - want the benefit of refreshed (systems) knowledge

- Several modifications to the physical plant systems
  - RTD Manifold removal
  - UHI removal
  - RHR Mid Loop Operation
  - S/G Blowdown Demin System
  - Aux F.W. Discharge Pressure Control System

- New REP and IPDs to learn

- Major Control Board changes to learn
  - CRDR
  - Annunciator
  - Numerous other instrument changes
  - Require several weeks to learn/adjust with decisive reaction to Abnormal Condition

- Educationally Sound Approach to this volume of change is consecutive weeks of team training to permit new habits and reactions to develop.
  - decision to restructure the 1990 Requal
  - 10 weeks of 3 groups
  - permits plant support
  - permits exposure to all facets of change
  - judged adequate to accommodate change in required behavior as well as plant changes
  - Detailed review of AOIs, GOIs, EOIs, FRIs, ECAs
  - Training on new REP and IPDs
  - Simulator intensive to permit learning new boards

SPECIAL EMPHASIS AREAS

- BOARD CHANGES
- PLANT CHANGES
- OPERATION PROCEDURE CHANGES
- REP and IPDs
- SYSTEMS REVIEWS IN TRAINING
- CRITICAL OPERATOR ACTIONS DURING START UP
- SYSTEM WALK-THROUGHS FOR KNOWLEDGE REINFORCEMENT

INTEGRATE LESSONS LEARNED

- SQNP

  - During restart Units 1&2, the plant experienced several low water level trips. In an effort to reduce the number of such trips during startup of WBN Unit 1, the following steps are being taken:

    - Control loop training (anti water hammer system) to increase operator understanding.

    - Simulator training scenarios requiring changeover from bypass to main feed reg valve control

    - Revision of SOI to provide detailed instructions for changeover from bypass to main feed reg valve control

    - Change in control room design to provide the operator with an indication of feedwater bypass flow

INTEGRATE LESSONS LEARNED

- BFNP

  - Develop an improved screening process for selection of candidates to put up for NRC Requal & Initial exams

  - Define plant management expectations for control room crew conduct and area of responsibility

  - Practice on simulator what we expect in the plant

  - Involve operations management in simulator crew evaluations

  - Develop and implement an evaluator training course

INTEGRATE LESSONS LEARNED

- Other Nuclear Plants
  - Frequent communications with NRC
  - Early exposure of license holders to ES-601 exam format
  - Exchange information with other utilities in region
  - Include a plant SRO on the exam team
  - Develop JPMs with well defined starting & stopping points
  - Develop evaluator standards & train staff in the JPM & Scenario evaluation techniques

APPROACH TO TRAINING DEVELOPMENT

- **STRUCTURED ASSESSMENT OF CONTENT**
  - Changes in Plant, Board, Procedures
  - Required Requal Coverage
  - Systems & Theory Review
  - Critical Actions
- **SYSTEMATIC DESIGN**
  - Subjects for each content item selected for Classroom/Simulator
  - Evaluation of knowledge, skill carefully programmed
    - Part A
    - Part B
    - JPM
    - Scenario
- **RIGOROUS IMPLEMENTATION**
- **FORMAL (ES-601) EVALUATIONS**

REQUAL TRAINING ACTIVITIES TO BE CONDUCTED

	TYPE	1989 O N D	1990 J F M A M J J A S O N D	1991 J F M A M J J A S O N D	REASON
LICENSED PERSONNEL	REQUAL	5&6		1 2 3 4 5&6 7 8	MAINTAIN 32 SRO LIC; 14 RO LIC; & 29 CERT. IN 1989-90. MAINTAIN POSSIBLE 67+ LIC'S IN 1991.
	STARTUP/REQUAL 10 WEEKS CONTROL ROOM REV. EOP, AOI, REP, TECH SPECS, SYSTEMS REQUAL		3/12 5/18 8/10 11/2 (A) (B) (C) 6/4 8/27 11/16 EXAM EXAM EXAM H H		STARTUP/REQUAL WILL PREPARE 46 PRESENTLY LICENSED PERSONNEL TO OPERATE WBN UNIT 1 REFRESHER TRAINING
	PLANT/PROCEDURES CHANGES UPDATE TRAINING		11/19 H		TRAIN LICENSED OPERATORS IN RECENT PLANT/PROCEDURES CHANGES PRIOR TO STARTUP
	SPECIAL STARTUP		12/3 12/21 1/7 1/21		INITIAL CRITICALITY, MID LOOP OPERATION, FUEL HANDLING, STARTUP, FW CONTROL; OTHER SPECIAL CRITICAL ITEMS

Requal Exams

- Planned Requal Exams 1990 Weeks of:

__ 21 May 90, 28 May 90	10 SRO 4 RO
__ 13 Aug 90, 20 Aug 90	11 SRO 5 RO
__ 05 Nov 90, 12 Nov 90	10 SRO 5 RO

Initial License Candidates

Training Since 1985

- 38 AUOs trained
  - 116 weeks conducted at POTC/Site

- 26 ROs trained
  - 39 weeks conducted at POTC/Site

- 5 SROs trained
  - 42 weeks conducted at POTC/Site

These RO/SRO personnel are "Certified" by TVA or are in training and will be ready for initial license exam by approximately April 1991.

INITIAL LICENSE TRAINING ACTIVITIES TO BE CONDUCTED

	TYPE	1989 O N D	1990 J F M A M J J A S O N D	1991 J F M A M J J A S O N D	REASON
INITIAL LICENSES	ONSITE		3/9 ⊢		PREPARE 8 OPS FOR PRELIC CLASS
	GFE		⊢ ⊢	⊢	PREPARE PERSONNEL FOR GFE EXAM
	REFRESHER		⊢ ⊢		CHANGES TO PLANT, PROCEDURES AND CONTROL ROOM
	PRELIC			1/7 ⊢ 4/26 ⊢ 5/13 EXAM	NRC INITIAL EXAM 22 CERTIFIED CANDIDATES
	STEP 3 ELECT.			⊢	PROVIDE UPGRADE REQUIREMENTS FOR ASOS
	CERT.			5/13 ⊢ 9/6 ⊢	UPGRADE FOR OPERATORS

Requested Initial Exams

Weeks of:

__ 13 - 17 May 91

2*	Initial SRO
11*	Initial RO
3*	Upgrade
4*	STA SRO
1*	STA SRO/INSTR

* Estimated

__ October 1991 (Possible)