



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30323

ENCLOSURE 1

Report Nos.: 50-327/90-24, 50-328/90-24

Licensee: Tennessee Valley Authority  
6N 38A Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

Docket Nos.: 50-327, 50-328

License Nos.: DPR-77, DPR-79

Inspection Conducted: July 17-20, 1990

Inspectors: James H. Moorman, III, Team Leader

8/1/90  
Date Signed

Team Members:  
Curt Rapp, USNRC, Region II  
Ron Gibbs, USNRC, Region II

Approved by: John F. Munro, Chief  
Operator Licensing Section 1  
Division of Reactor Safety

8/1/90  
Date Signed

SUMMARY

Scope:

The licensed operator requalification program was inspected. The inspection focussed on licensee conduct of simulator and classroom training, examination materials and simulator fidelity and maintenance.

Results:

Simulator and classroom training were conducted with prepared lesson plans containing specific objectives. Recent plant modifications to Unit 1 were covered and Unit differences were highlighted. Changes made to the Emergency Operating Procedures as a result of the plant modifications were emphasized as they were encountered during the course of training. Exam materials were continuing to improve. The simulator will be receiving a major software upgrade. Testing is scheduled to be completed in time for certification in March of 1991. Until then, the current, limited model will be used for training and examination.

No violations or deviations were identified.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*D. Bean, Accreditation, Research, Development and Evaluation Manager
- \*C. Benton, Sequoyah Operator Training Manager
- \*D. Conner, Sequoyah Training Manager
- \*L. Durham, Manager, TVA Nuclear Training
- \*C. Kelley, Commitment Management Specialist
- \*R. King, Senior Instructor
- \*D. Lagugrun, Sequoyah Operations Manager
- \*M. Loiek, Sequoyah Operations Superintendent
- \*M. Murphey, Licensed Operator Training Program Manager, Corporate
- \*C. Noe, Curriculum, Accreditation and Control Manager
- \*R. Thompson, Sequoyah Site Licensing
- \*C. Vondra, Sequoyah Plant Manager

Other licensee employees contacted included instructors, engineers, technicians, operators and office personnel.

#### NRC Representatives

- \*R. Gibbs, USNRC, Region II
- \*P. Harmon, USNRC, Senior Resident Inspector
- \*J. Moorman, USNRC, Region II
- \*C. Rapp, USNRC, Region II

#### \*Attended Exit Meeting

### 2. Conduct of Requalification Classroom and Simulator Training

Recent modifications to Unit 1 had resulted in changes to plant operating characteristics as well as changes to plant procedures. These modifications include the installation of the Eagle 21 Reactor Protection System, Alternate Mitigation System Actuation Circuit (AMSAC) and planned installation of main steam line radiation monitors. Other modifications involved removal of the Boron Injection Tank, Upper Head Injection and RTD bypass manifolds. The Emergency Operating Procedures (EOPs) were changed May 17, 1990, as a result of these plant modifications. The EOPs were split into separate Unit 1 and Unit 2 volumes with the Unit 1 EOPs undergoing a complete revision. Training on these changes has taken various forms. Each licensed operator is required to individually review each of the changes while on shift. The training staff has been designing training around the changes and emphasizing the changes as they are encountered. One crew was given special training on the EOP changes to prepare for plant startup. All licensed operators will receive similar training on the EOP changes prior to the end of the current requal cycle and prior to taking NRC administered requal exams scheduled for September 1990.

Classroom and Simulator training were observed and lesson plans were reviewed to determine if recent changes to the Emergency Operating Procedures and recent plant modifications had been incorporated into the requalification program. The lesson plan material had been changed and the new information had been incorporated into the program. Simulator training covered plant casualties that required use of the newly changed sections of the EOPs. Simulator training also covered proper crew communications and the Senior Reactor Operator "command and control" function. Lesson plans contained learning objectives that were generic to operator performance and objectives that were specific to the training scenario. For the session observed, all objectives in the lesson plan were covered.

The Emergency Plan Implementing Procedures (EPIP) had also undergone a recent revision. They were changed to conform with the NUMARC recommended format. The training conducted on the EIPs was conducted by the author of the changes who used an updated and revised lesson plan.

Annual simulator and written exams were observed. The simulator exams covered a variety of EOPs and some entered into the Functional Restoration Procedures. The scenarios did not contain events which required entry into Abnormal Procedures or use of Technical Specifications. The scenarios included passive malfunctions that were pertinent to the scenario but did not cause degraded equipment or plant conditions. The facility evaluators did not interfere with the operators during the exam and observed the exam with a level of detail which affords a proper evaluation. Annual written exams were reviewed. These exams consisted of NRC type Static Simulator and Open Reference exams. The quality of the exam questions has increased compared to the original questions submitted to the NRC for review. These exams generally conformed to NRC standards.

The simulator has been modified to incorporate the modifications listed above. Training has been conducted to cover the specific changes and differences are highlighted as they are encountered in other training. Model problems which are common to this vintage simulator still exist. These problems require exams to be carefully written and validated to insure that realistic plant responses are obtained during the exam. Testing will begin on a new model in September 1990 and the new model is scheduled to be in place in time for simulator certification in March 1991.

3. The inspection scope and results were summarized on July 20, 1990, with those persons indicated in paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed above. Proprietary information is not contained in this report.