

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-29/86-03

Docket No. 50-29

License No. DRP-3

Licensee: Yankee Atomic Electric Company
1671 Worcester Road
Framingham, Massachusetts 01701

Facility Name: Yankee Nuclear Power Station

Inspection At: Rowe, Massachusetts

Inspection Conducted: January 15-16, 1986

Inspector: *R. M. Kelly*
R. M. Dudley, Lead Reactor Engineer

2/20/86
date

Reviewed by: *R. M. Kelly*
R. Keller, Chief
Reactor Projects Section 1C

2/20/86
date

Approved by: *Jack Stronach*
for H. Kister, Chief
Reactor Projects Branch No. 1

2/20/86
date

Inspection Summary: A routine inspection was conducted of the licensed operator training program. It was found that the training program does not define or limit the body of knowledge for which licensing candidates are responsible. The training material, including system descriptions and lesson plans, does not adequately cover the information a licensing candidate should know to safely operate the facility. There is no documentation which indicates that the training department analyzed the results of the evaluations of licensing candidates or used the results of the evaluations to modify the training program.

8603210246 860303
PDR ADOCK 05000029
Q PDR

DETAILS

A. Scope:

A review of the licensed operator training program was conducted and included an audit of the training records of three Senior Reactor Operator (SRO) candidates and four Reactor Operator (RO) candidates, a check of available training material, an audit of the Training Slide Change Notices program, an audit of the Training Manual Update program, and interviews with five license candidates.

B. Findings:

Licensed operator's training records are complete and provide a record of the training and evaluations received by each candidate. Licensing candidates were given foundation training provided by a consultant, systems and procedure training provided by utility training instructors, simulator training provided by Westinghouse at the Zion simulator, and three months of training on shift. A final evaluation was conducted by a consultant firm.

A two week simulator session was held four months prior to the completion of the training program. Evaluations of candidates' performance on the simulator included the following comments, "use procedures more, needs practice answering written and oral questions which require him to tie theory and operations together"; "trouble connecting unrelated facts"; "Operating experience needed to relate facts and draw logical conclusions"; "not familiar with procedure but has a good "feel" for what should be done"; "provides vague answers"; and "not as familiar with Yankee's procedures as others. Needs to thoroughly learn and review Technical Specifications." There is no indication that these comments were used to modify future training received by the candidates.

A utility evaluation was administered to the candidates prior to the consultant evaluation. It identified Section 4 (Procedures - Normal, Abnormal, Emergency and Radiological Control) of the written examination as the weakest area for RO candidates and Section 8 (Administrative Procedures) of the written examination as the weakest area for SRO candidates. In Section 7 (Procedures - Normal, Abnormal, Emergency and Radiological Control) of the written examination for the SRO candidates there was a generic weakness on Questions 10 and 14 which examined in the area of immediate actions of Emergency Procedures. There is no indication that these weaknesses were identified by the licensee or used to modify future training received by the candidates.

A consultant evaluation was conducted three weeks before the completion of the training program. It identified Sections 4 and 8 of the written examination as areas of weakness. In most cases the grades in Sections 4 and 8 were 10% to 30% below the highest section grade received by each

candidate. Assuming that all sections were of equal difficulty, this would indicate significant weakness in the areas of procedures for the RO candidates, and Administrative Procedures, Conditions and Limitations for the SRO candidates. There is no indication in the training records that these weaknesses were used to modify future training received by the candidates. Some candidates stated during interviews that intensive training was provided in the areas they failed on the consultant evaluation.

The licensee does not have system descriptions for all major plant systems. There are 14 systems, including radiation monitoring, fire protection, and emergency diesel generators, which have been identified as requiring system descriptions to be written. The licensee is presently working on three of these system descriptions and plans on completing all 14 by mid 1987. There are slide presentations and lesson plans only for those systems which have system descriptions written. The licensee provides training on systems which do not have lesson plans by utilizing individuals who are knowledgeable about the system and the Final Safety Analysis Report and Auxiliary Operators' Training Manual.

There are no learning objectives for the systems which do not have prepared lesson plans. The lesson plans that are written have objectives, however, the learning objectives are very broad and are not based on a job performance analysis.

There are no lesson plans written for integrated plant operations and responses. Two documents exist which address integrated plant response; Safety Analysis Assumptions and Steady-State and Transient Thermal-Hydraulic Characteristics February 1985. Licensing candidates did not know of the existence of either document. Over thirty hours of instruction was provided on 52 Emergency Operating Procedures (EOP) using a two page lesson plan which states the objective for each candidate is to be able to "Carry out all immediate actions for each emergency procedure...". The candidates, however, had determined that they were not required to know the immediate actions for all EOP's. They had agreed among themselves which EOP's they should memorize. The Training Manager stated that memorization of immediate actions for all EOP's was not required for the candidates, but he was unable to provide a listing of the EOP's for which the facility held the candidates responsible.

The Training Slide Notices program and the Training Manual Update program are programs used to assure that plant modifications are reflected in the training material. The tracking programs are in place. Major plant modifications made during the latest outage in November have not been incorporated into the program because the final revision of the Core XVIII Pre-Startup Training Manual has not been completed. A check of index of the Training Manual Update tracking book index indicated that 30 changes to

the Systems Training Manual had been identified for over six months but had not been incorporated into the manual. Some changes that had been identified for over 2 years had not been incorporated.

On-shift training for the RO candidates was well structured and documented. The weekly task sheets prepared by each candidate were of sufficient detail to evaluate the training RO candidates received on shift. On-shift training for the SRO candidates was structured the same as the RO candidate program. The weekly task sheets prepared by the SRO candidates were not of sufficient detail to evaluate what training was received on shift. The shift training for the SRO candidates was conducted at the beginning of their training program, prior to any classroom instruction. In one case the SRO candidate spent a majority of his time on shift learning how to operate equipment outside the main control room.

The training staff consists of an SRO licensed Training Manager and five SRO licensed Senior Instructors. There are additional positions for six instructors with only three of the positions presently filled. The number of licensed instructors is adequate to conduct an on-going operator licensing program. The total number of instructors may be insufficient to complete training manuals and lesson plans, update present training material, and conduct AO, RO, SRO and requalification training.

C. Conclusions:

The facility training material does not define, for all systems and procedures, the extent or depth of knowledge for which trainees are held responsible. The on shift training program, does not define the extent or depth of information which the trainees should acquire during their time on shift. The facility should better define what the learning objects are for their trainees. (50-29/86-03-01)

There is no indication in the training material that integrated plant responses are taught. The System Training Manual deals with systems and system components as discrete subjects and does not include discussions on effects of the system on the overall plant. There are no lesson plans which addresses integrated plant responses. The facility should explain how integrated plant response and transient plant responses are taught during the training program. (50-29/86-03-02)

No documented action was taken in response to the results of trainee evaluations. There is no indication in individual training records that an analysis of evaluation results was conducted to identify individual or generic weaknesses, or that the results of the evaluations were used to redirect or restructure the individual or total training program.

D. Exit Interview:

NRC Personnel: N. Dudley, Lead Reactor Engineer
H. Eichenholz, Senior Resident Inspector

Facility Personnel: N. St. Laurent, Plant Superintendent
B. Drawbridge, Assistant Plant Superintendent
L. Lafford, Senior Instructor
F. Newton, Senior Instructor

The inspector noted the following deficiencies in the licensee licensing training program. There are no performance based learning objectives. There are fourteen systems for which no system description or lesson plan have been written. There is no lesson plan which specifically addresses integrated plant response during steady state and transient conditions. There is no lesson plan which specifically addresses the design basis for the Final Safety Analysis Report or the basis for actions required by the Emergency Operating Procedures.