UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-390/95-01 and 50-391/95-01

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

Docket Nos.: 50-390 and 50-391 License Nos.: CPPR-91 and CPPR-92

Facility Name: Watts Bar Nuclear Plant Units 1 and 2

Inspection Conducted: January 9-13, 1995

Inspector: J H Bartley 2/23/95
Jonathan H. Bartley Date Signed

Accompanying Personnel: R. Baldwin, RII
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Approved by: Caudle Julian 2/24/95
Caudle Julian, Chief Date Signed
TVA Operations Branch
Division of Reactor Projects

SUMMARY

Scope:

This routine, announced inspection was conducted in the areas of licensed operator and non-licensed staff training with specific emphasis on the Instrumentation and Controls Technician, Electrical Maintenance, Engineering Support Personnel, and Non-licensed Operator training programs. The purpose of this inspection was to ensure the training programs would produce a staff trained to operate Watts Bar when it becomes licensed. The inspection was accomplished through observations of work in progress and training, review of the training program implementing procedures, and interviews of operators, technicians, instructors, and supervisors.

Enclosure

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Results:

The NRC determined that TVA's training programs required by 10 CFR 50.120 were in place and adequate to support operations.

The NRC determined that Instrumentation and Controls Technician, Electrical Maintenance, Engineering Support Personnel, and Non-licensed Operator training programs were adequately implemented using the systems approach to training process even though some deficiencies were identified.

The NRC identified an Inspector Follow-up Item in that Procedure SSP-2.03, "Administration of Site Procedures," was not adequate to assure proper qualification of QA Reviewers for procedures (paragraph 4.0).

The NRC identified a weakness in that Procedure SSP-1.04, "Qualification of Personnel," did not contain the specifications for college level instruction for SROs and Shift Operations Supervisors nor was TVA tracking these criteria to ensure they were satisfied (paragraph 2.2).

The NRC identified a weakness in that the Electrical Maintenance, Instrumentation and Controls Technician, and Engineering Support Personnel continuing training programs did not identify complex, infrequent or safety significant tasks for training (paragraphs 3.1, 3.2.2, and 3.3).

REPORT DETAILS

1.0 Persons Contacted

Applicant Employees:

*D. Armentrout, Quality Engineering Manager
*R. Baron, General Manager, NA&L
*L. Durham, Manager, Nuclear Training, Corporate
C. Faulkner, Reactor Engineering Supervisor
*R. Hardin, Security Manager
*D. Herrin, Compliance License Engineer
*D. Kehoe, Quality Assurance Manager
*C. Kelley, Nuclear Security
*D. Koehl, Technical Support Manager
*L. Maillet, Site Support Manager
*R. Mays, Regulatory Licensing Manager
S. McNair, Nuclear Training Manager
*J. Norris, Quality Assurance CAP/SP Manager
*D. Nunn, Vice President, New Plant Completion
*P. Pace, Compliance Licensing Supervisor
*L. Parscal, Project Manager
*R. Purcell, Plant Manager
*J. Scalice, Vice President
*M. Skaggs, Manager of Projects (acting)
*L. Strickland, Technical Training Manager
*W. Thompson, Training Manager
*J. Vorees, Regulatory Licensing Manager

Other applicant employees contacted included engineers, technicians, nuclear power supervisors, and construction supervisors.

NRC Personnel:

*D. Thompson, Safeguards Inspector, RII
*A. Tillman, Safeguards Inspector, RII
*L. Stratton, Safeguards Inspector, RII
*P. VanDoorn, Senior Resident Inspector, Operations

*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

2.0 Pre-Licensing Review of Training and Qualification Programs (IP 41301/41500)

As part of the Watts Bar pre-licensing review, the NRC inspected the licensed operator and non-licensed staff training programs to ensure the implemented training programs would produce a staff that was capable of operating and maintaining Watts Bar after the plant was licensed. Although IP 41500 is referenced, it does not contain specific pre-licensing inspection guidance. Therefore, the review guidance in IP 41301, which was superseded by IP 41500, was used for

this part of the inspection. The NRC determined that the training programs adequately implemented the pre-licensing requirements and commitments.

2.1 Licensed Operator Training

The inspectors reviewed the FSAR, the TVA Nuclear Training Manual, and Procedure SSP-1.03, "Training of Personnel," Revision 9, to verify that the training programs incorporated regulatory requirements and licensee commitments. The team found that the TVA had developed and implemented training programs for ROs, upgrading RO licenses to SRO licenses, and instant SRO candidates. These programs were described in Procedures TRN-11.2, "Reactor Operator Initial Training," Revision 0, and TRN-11.3, "Senior Reactor Operator Initial Training," Revision 0. The inspectors also reviewed the requalification program description in Procedure TRN-11.4, "Continuing Training for Licensed Personnel," Revision 1, and found that it incorporated the requirements of 10 CFR 55.59. The inspectors verified that TVA's process for submitting applications for operator licenses complied with the requirements of 10 CFR 55.10 and 10 CFR 55.33. Procedure TRN-11.8, "Operator License Examinations and Renewals," Revision 0, delineated this process.

The inspectors reviewed the training described by NUREG-0737, Item 1.A.2.1. Training in heat transfer, fluid flow, and thermodynamics was required to be contained in the requalification curriculum. Procedure TRN-11.4, Appendix B, "Training Topical Outline," incorporated these topics in the lectures. In addition, the curriculum contained training on in-house and industry events as described by NUREG-0737. The inspectors verified that the continuing training program implemented training on the use of installed equipment and systems to mitigate accidents in which the core was severely damaged. The inspectors reviewed the curriculum outlined in Procedure TRN-11.4 and noted that it contained "Mitigation of Accidents Involving a Degraded Core." Finally, the inspectors verified that TVA had a training program for STAs outlined in Procedure TRN-11.6, "Shift Technical Advisor Training," Revision 1, as described by NUREG-0737, Item 1.A.1.1.

The inspectors reviewed TVA's process for ensuring that training materials reflected the as-built condition of the plant and approved operating procedures. Procedure NTI-203.21, "Change Action Management," Revision 0, implemented the process for evaluating and incorporating change actions affecting training programs. The inspectors reviewed the process and determined it was adequate.

2.2 Non-Licensed Staff Training

The inspectors reviewed TVA's indoctrination training (General Employee Training (GET)) for all site personnel. Plant requirements in these areas were specified in the following procedures: SSP-1.03, "Training

of Personnel," Revision 9, GET 300.000, "General Employee Training," Revision 8, FFD 002.000 Att 1, "Fitness for Duty Training," Revision 2, GET 022/023, "Radiological Controls Training," Revision 0, and GET 302.000, "Category II Radiological Controls Training," Revision 2. The inspectors determined that the indoctrination programs satisfactorily implemented indoctrination training.

The inspectors reviewed Procedure SSP-1.04, "Qualification of Personnel," Revision 2, to determine if WBN met the commitments identified in the FSAR. The inspection team found that TVA had committed to follow ANSI-N18.1-1971 and ANSI/ANS-3.1-1981 as delineated in FSAR paragraph 13.1.3, "Qualification Requirements for Nuclear Facility Personnel." The team determined that TVA met the commitments made in the FSAR, in that Procedure SSP-1.04 described qualifications for positions designated in the FSAR. Additionally, WBN also described additional qualification requirements for supervisors not listed in paragraph 13.1.3 of the FSAR. The inspectors compared the supervisors qualification requirements listed in the FSAR to the appropriate standard to determine compliance. The inspectors found that TVA's administrative procedures incorporated the stated FSAR commitments in all areas with the exception of two. The inspectors determined that Procedure SSP-1.04 and the FSAR did not delineate the number of hours of college level courses required in addition to the high school diploma for the Shift Operations Supervisor and the Assistant Shift Operations Supervisor. ANSI/ANS-3.1-1981 specified the Senior Operator (WBN, Assistant Shift Operations Supervisor) to have a "... high school diploma plus the equivalence of 30 semester hours of college level education (450 classroom or instructor conducted hours) in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, and electrical and reactor control theory." In addition, ANSI/ANS-3.1-1981 specified the Shift Supervisor (WBN, Shift Operations Supervisor) to hold a "... high school diploma plus the equivalence of 60 semester hours of college level education (900 classroom or instructor conducted hours) in mathematics, reactor physics, chemistry, materials, reactor thermodynamics, fluid mechanics, heat transfer, and electrical and reactor control theory." The requirement for the Shift Supervisor did not have to be met provided that a shift technical advisor was present during this supervisor's shift. The inspectors found that WBN's program allowed for the use of the STA. The inspectors noted that Procedure SSP-1.04 did not delineate the number of hours or areas in which the Assistant Shift Operations Supervisor or Shift Operations Supervisor must be trained in accordance with ANSI-3.1-1981 nor was TVA tracking these criteria. This was considered a weakness.

The inspectors reviewed the course syllabus for the NOTP and determined that this program accumulated approximately 734 hours in areas delineated in ANSI/ANS-3.1-1981 paragraph 4.3.1.2, Senior Operator qualification requirements. Personnel enrolled in the NOTP program received an associates degree in Mechanical Engineering Technology,

Nuclear Power Operations. Additionally, participants in the NOTP program received additional electrical training in Electrical Step II (approx. 91.5 hours) and Electrical Step III (approx. 94.5 hours) training. Additional hours utilized towards the ANSI/ANS-3.1-1981 requirement were provided from the Generic Fundamental Examination Section (GFE) training. The GFE training covered areas of reactor theory, thermodynamics, and components. The inspectors determined that approximately 125 hours could be used towards the ANSI-3.1 stated need. The inspectors concluded that personnel who participated in the NOTP met the ANSI-3.1 specification for the equivalence of 30 hours of college level education.

The inspectors reviewed the training records for two Senior Operators that certified through the NTOP program. The inspectors determined that these operators met the specifications of ANSI/ANS-3.1-1981. In addition, the inspectors reviewed the training records for one Senior Operator that did not certify through the NTOP program. This operator received approximately 280 hours of nuclear physics and reactor theory training at the college level. The operator also attended the Electrical Step II, Electrical Step III and the GFE training described above. The inspectors concluded from this review that the operator met the college level equivalency requirements of ANSI-3.1. The tracking of training hours will be reviewed in more detail during a subsequent inspection.

The inspectors reviewed the training programs for Engineering Support personnel, I&C Maintenance Technicians, Non-Licensed Operator, and Electrical Maintenance Technicians to determine if they required training for specific tasks assigned. The inspectors reviewed plant requirements in this area by reviewing the following procedures: TRN-23, "Engineering Support Personnel Training," Revision 1, ESP-320.00, "Reactor Engineer Qualification Standard," Revision 0, TRN-15, "Electrical Personnel Maintenance Training," Revision 2, and TRN-11.1, "Non-Licensed Operator Initial and Continuing Training," Revision 0. The inspection team determined that the training programs contained required training for specific tasks assigned.

2.3 Conclusions

The NRC determined that TVA's training programs adequately implemented the requirements and commitments. The NRC identified a weakness in that Procedure SSP-1.04 did not contain the specifications for college level instruction for SROs and Shift Operation Supervisors nor was TVA tracking these criteria to ensure they were satisfied.

Within the areas inspected, no violations or deviations were identified.

3.0 Training and Qualification Effectiveness (IP 41500)

The NRC reviewed the I&C Technician, EM, ESP, and NLO training programs. The NRC determined the selected training programs were developed, implemented, evaluated, documented, and maintained as required by 10 CFR 50.120. The NRC identified as a weakness that some training programs did not identify difficult, important, or infrequent tasks for continuing training.

3.1 I&C Technician Training Program

The inspectors reviewed the I&C Technician Training Program against the requirements of 10 CFR 50.120 and the guidelines of NUREG 1220. The team determined that the I&C Technician Training Program met regulatory requirements and was satisfactory. The inspectors also determined that the I&C Technician Training Program was based on the SAT process. The inspectors identified the failure to identify difficult, important, or infrequent tasks for continuing training as a weakness.

The inspectors interviewed the Acting Maintenance Training Manager, two senior I&C instructors, and four I&C senior technicians to determine the effectiveness of the I&C Technician Training Program. The interviews revealed that, while feedback was always solicited from trainees when the training was conducted by the Maintenance Training Department, feedback was not always solicited when training was conducted by other organizations (including operations or maintenance). The inspectors also determined from the interviews that the lead I&C instructor was neither familiar with the IPE program nor knowledgeable about plant systems that are significant contributors to overall plant risk (PRA calculations). Therefore, through this and subsequent interviews, the NRC found that TVA did not train or plan training using their IPE. The feedback program should ensure training incorporates safety significant issues such as those identified in the IPE.

The inspectors observed portions of the conduct of three surveillance tests and maintenance items. The inspectors made the following observations.

- The inspectors observed the conduct of portions of WO 93-23467-00 which included performance of portions of IMI-92.013, "Testing, Removing, and Installing NIS Power Range Uncompensated Ionization Detectors (N44A and N44B)," Revision 1. The inspectors observed that I&C technicians did not have the correct test lead to accomplish the task. Work was delayed while the correct test lead was obtained.

- The inspectors observed the conduct of portions of WO 92-17563-00 to calibrate and troubleshoot the Low Range RHR Radiation Monitor 1-LPR-90-290. During this operation, portions of IMI-90.015, "92 Day Channel Operational Test of the Low Range Area Radiation

Monitors," Revision 1, IMI-90.020, "18 Month Channel Calibration (Source Cal) of the Low Range Area Radiation Monitors," Revision 1, and IMI-90.011, "General Atomic Model RP-1 or RP-1AM Module Alignment used to Monitor RD-1 or RD-1-03 Detectors," Revision 1, were performed. The inspectors observed that during the administration of Section 7, "Post Performance Testing," of IMI-90.015, a malfunction of the operating switch was identified by the technicians. The switch was a three-position switch (CHECK-OPERATE-ALARM SET) which should spring return to the OPERATE position. The switch was loose such that the entire switch internals rotated in lieu of just the control knob. When the switch was turned clockwise, it went past the ALARM SET position and then spring returned to the indicated ALARM SET position even though the switch was actually in the OPERATE position. The post performance testing was completed with this condition existing. The deficiency was noted by the technicians and logged in the work completed section of the WO. This condition was not reported to supervision when discovered. The deficiency was later corrected in the shop after the module was removed to complete portions of IMI-90.011.

- The inspectors observed the conduct of portions of WO 94-00618-01 for the GAMMAMETRICS 18 Month Surveillance Inspection procedure. The inspectors observed the conduct of portions of 1-SI-92-32, "18 Month Calibration of Source Range and Intermediate Range, Channel II," Revision 0. The technicians identified deficiencies in the procedure, appropriately researched drawings and technical manuals, and contacted engineering for resolution. The inspectors noted a number of labeling and component identification deficiencies in NI Panel 1-NM-92-132-E. Jacks and plugs were not all marked; therefore, performance of SIs that identify removal and connection of plugs by "P" number was complicated (additional manuals, drawings, and engineering support required). Two cards containing test points were mounted upside down, such that in order to view the identification markings of test points and adjustment points, it was necessary to get on the floor and look up at the bottom of the cards. The two cards were so close together that viewing labeling on the upper card was even more difficult.

The inspectors determined the discrepancies identified during the maintenance observations did not reflect training weaknesses.

The inspectors reviewed Procedure TRN-17, "Instrumentation and Controls Personnel Training," Revision 1, and the implementation of the I&C Technician Training Program to see if it was based on a SAT process. The inspectors reviewed the JTA, qualification requirements, OJT requirements, and qualifications of personnel. The inspectors were unable to observe I&C Technician classroom training because none was scheduled. The inspectors reviewed meeting notes of the I&C

maintenance training CRC to determine how tasks were identified for training in the continuing training program. The approved meeting minutes for April 21, 1994, stated under the Continuing Training Needs Section: "Infrequently performed/difficult tasks ..... this should not be a standing agenda item. Infrequently performed/difficult tasks are procedure driven due to their complexity. Training is not required due to the step by step instruction in the procedures." This comment suggests that I&C management does not fully understand the characteristics of program evaluation under a SAT-based training program. The approach outlined in the meeting minutes could mean that critical parts of the I&C program would not be regularly evaluated by management for performance problems and, therefore, management would be unaware of declining quality and impending problems in the program. The inspectors reviewed the I&C maintenance continuing training calendar (training plan) and found that it did not incorporate training on difficult or infrequently conducted tasks. NUREG-1220 SAT Element 4.4 stated "Continuing training contains performance requirements for difficult, important, or infrequent tasks." The inspectors found two facility procedures that directly addressed identification of tasks for continuing training which were not followed by the facility. Procedure TRN-3, "Conduct of On-The-Job Training," Revision 1, Paragraph 3.9.B.2 specified "OJT retraining/task requalification" may be required when the frequency, importance, or difficulty of the task dictates refresher training. Procedure NTI-201.20, "Conduct of Job Task Analysis," Revision 1, paragraphs 3.5.b.3 and C.3 required the "job task list/task-to-training matrix" to designate tasks as either train (T), no-train (NT), or continuing training (CT). The purpose for identifying specific tasks for continuing training is to provide a preventative measure for maintaining operator proficiency in safety-significant tasks before performance related problems occur. The inspectors identified the failure to classify difficult, important, or infrequent tasks for continuing training as a weakness.

3.2 Engineering Support Personnel Training Program

The inspectors reviewed the Engineering Support Personnel and Reactor Engineering Training Programs against the requirements of 10 CFR 50.120 and the guidelines of NUREG 1220. The team determined that the Engineering Support Personnel and Reactor Engineering Training Programs met regulatory requirements and were satisfactory. The inspectors also determined that the training programs were based on the SAT process and further detailed inspection using IP 41500 was not required. The inspectors identified the failure to classify difficult, important, or infrequent tasks for continuing training as a weakness.

3.2.1 General Engineering Support Training

Plant requirements in this area were specified in Procedure TRN-23, "Engineering Support Personnel Training," Revision 1. The procedure required that ESP personnel receive continuing training at least

annually. The inspectors determined from interviews that continuing training was proposed by the Engineering Support personnel instructor for the generic portion of ESP training and by the various engineering support supervisors for their specific continuing training needs. The ESP instructor submitted the proposed generic continuing training package to the CRC for approval. During quarterly CRC meetings, the CRC approved proposed training materials for generic continuing training. Continuing training packages took approximately six to seven months to plan and were not approved until July or August of the year in which the training was scheduled to be accomplished. The ESP instructor was supposed to prepare packages for the quarterly CRC meeting to formalize suggested topics for the generic ESP training package. Although this was supposed to be done quarterly, manpower constraints of the department did not allow this package to be prepared for every quarterly CRC meeting. The inspectors found there was no generic, continuing training proposal for the January 1995 CRC meeting. Currently, the ESP instructor was compiling the topics for consideration for presentation to the March 1995 CRC meeting. This process allowed only three to four months for the engineering support group's personnel to complete the required reading and questionnaire for continuing training. In addition, all continuing training was done on a current year, not as training that was projected as necessary for the future.

The inspectors interviewed supervisors, reactor engineers, and one ESP training instructor to obtain a variety of information concerning the conduct and the adequacy of generic engineering support and specific reactor engineering training and retraining programs. In general, those individuals believed that the generic ESP training was adequate to support the requirements of their assigned responsibilities. There were no unfavorable comments concerning the adequacy of the engineering support training.

The inspectors found that the generic portion of the ESP program used a final self-evaluation in the form of a questionnaire. This questionnaire was a multiple choice evaluation tool that was handed out to the engineering groups with the required reading package. This questionnaire was taken as an open book type evaluation. The inspectors determined that this practice of self-administered evaluation was consistent with the requirements of SAT Element 4.2, "Trainee performance is evaluated regularly." The grades for this questionnaire ranged from 80 to 100 percent with a required passing grade of 70 percent. The engineers were not allowed to take these examinations together (aid from others); however, there were no controls in place to prevent this practice. The whole evaluation process was quite informal. The ESP instructor conducted post-training package interviews to determine effectiveness of the continuing training process. It was during these interviews that solicitations for additional topics for use on the next continuous training package

were made. The inspectors concluded that while self-evaluations are allowed by the SAT process, the lack of controls and informality of the evaluation process may result in an ineffective program.

The inspectors determined that the ESP instructor did not use the IPE (PRA) in determining or evaluating topics when proposing topics for the generic ESP continuing site training. The inspectors also determined that the Training Support Manager did not require the Generic ESP continuing site training to contain information concerning systems that were high contributors to core melt as determined by the IPE (PRA). The feedback program is to ensure that training incorporates safety significant issues such as those identified in the IPE.

3.2.2 Reactor Engineering Training

The inspectors reviewed ESP-320.00, "RXE Qualification Standard," Revision 0, to evaluate initial qualification requirements for Reactor Engineers. The inspectors determined that the tasks delineated in ESP-320.00, were derived from the generic INPO task lists and other Watts Bar task lists. The inspectors concluded this was acceptable. The inspectors found that TVA recently retrained the entire RE staff using the initial qualification program based upon an INPO finding that there was not a qualification card for the RE group. This program was developed using one of the RE staff members as the subject matter expert. This engineer developed a lesson plan for one of the systems or tasks from the newly developed qualification card and then presented this information to the rest of the group in a hands-on lecture on the system or task. The RE who conducted the training was credited for the system or task and the rest of the group was then also given credit for having been trained in this area. This program was found to be adequate.

The inspectors performed a detailed review of the continuing training program for the Reactor Engineering department to determine if the training program was based on a SAT process. The inspectors determined the assignment of additional continuing training was normally identified from performance related problems exhibited by specific individuals. It was up to the individual's supervisor to determine the required continuing training. The inspectors determined that the RE group trained on areas of procedure changes, plant modifications, and industry events. In general, there were no lesson plans used for this training and no formal examinations were given to determine the knowledge retention of the individuals. The inspectors determined that the RE group did not conduct continuing training on difficult, important, or infrequent tasks as stated by NUREG-1220 Element 4.4. There were no plans to incorporate task requirements into continuing training for the entire reactor engineering group on a regular basis. The purpose for identifying specific tasks for continuing training is to provide a preventative measure (margin) to maintain an engineers proficiency in safety significant tasks prior to appearing as

performance deficiencies. The inspectors identified the failure to identify difficult, important, or infrequent tasks for continuing training as a weakness.

The inspectors determined that the RE group received annual continuing training mainly in the form of required reading with added emphasis on discussion of those topic areas. The inspectors determined from interviews that a formalized method of testing was not used. The method of determining knowledge level was through group or individual discussions. There was no comprehensive examination provided to assess retained knowledge. The inspectors could not make a judgement on the effectiveness on the RE training program due to the status of the plant and training program.

The inspectors determined that two of the three Reactor Engineers interviewed did not know those systems designated in the IPE as important to core safety. Additionally, those systems were not emphasized or suggested by the RE supervisor in determining or evaluating topics for RE continuing training. The feedback program is to ensure that training incorporates safety significant issues such as those identified in the IPE.

3.3 Electrical Maintenance Training Program

The inspectors reviewed the EM Training Program against the requirements of 10 CFR 50.120 and the guidelines of NUREG 1220. The team determined that the EM Training Program met regulatory requirements and was satisfactory. The inspectors also determined the EM Training Program was based on the SAT process. The inspectors identified the failure to identify difficult, important, or infrequent tasks for continuing training as a weakness.

The inspectors interviewed supervisors, instructors, journeymen, and apprentices to obtain a variety of information concerning the conduct and effectiveness of EM training. In general, those individuals who received the training thought that the training department was doing a good job. All interviewees stated that they had been adequately prepared for their jobs. Some individuals indicated that more emphasis should be placed on subjects such as solid state topics and print reading. The inspectors noted the use of Training Observation Forms to provide feedback to the training department; however, individuals providing the feedback information were not routinely informed of the comment resolutions.

The inspectors observed OJT in the electrical lab. The instructor maintained proper demeanor and conducted a TPE in a professional manner. The inspectors observed that the trainee performing the assigned task did not use procedures or a vendor manual. This instructor made a point to explain that this was a normal practice in the lab. Interviews with individuals in the apprentice class later

confirmed that it was normal practice not to use procedures in the electrical lab. Maintenance activities affecting safety of the plant were required to be performed using written procedures or instructions in accordance with Procedure SSP-6.01, "Conduct of Maintenance," Revision 3. Performance of a task without using a procedure during OJT is negative training if the task would require the use of a procedure in the plant.

The inspectors reviewed a vertical slice of the EM Training Program to determine if all five elements of the SAT process were present. The inspectors reviewed several JTAs and associated OJT qualification cards. The OJT qualification cards referenced lesson plans and other prerequisites. The inspectors noted that learning objectives appropriate to the tasks had been identified and were contained in both the qualification cards and lesson plans. The inspectors reviewed one lesson plan and associated examination bank. The design and implementation of the lesson plans were satisfactory. Questions in the written examination bank were appropriately related to learning objectives. The inspectors also reviewed the program evaluation and revision process. A review of the CRC meeting minutes (quarterly) indicated that information from supervisors and feedback from trainees was being used to update the Continuing Training curriculum. The inspectors noted one deficiency related to Element One of the SAT process which states that there is a systematic analysis of the jobs to be performed. Some JTAs and corresponding qualification cards were not removed from the training program even though the task no longer applied to the job description. The EM department intended to train on these tasks in the event the task was reassigned to the department. In addition, Procedure NTI-201.20, Appendix B, "Job Analysis and Task Analysis Update Form," was not being used when additions, deletions, or modifications to the task lists occurred nor was a JA/TA Update Log being used by the department. The inspectors also noted that the task-to-training matrix did not identify tasks to be included in continuing training on a periodic basis. Continuing training was determined during the quarterly meeting of the CRC on an emergent needs basis only. The purpose for identifying specific tasks for continuing training is to provide a preventative measure for maintaining operator proficiency in safety significant tasks before performance related problems occur. The inspectors identified the failure to identify difficult, important, or infrequent tasks for continuing training as a weakness.

3.4 NLO Training Program

The inspectors reviewed the NLO Training Program against the requirements of 10 CFR 50.120 and the guidelines of NUREG 1220. The team determined that the NLO Training Program met regulatory requirements and was satisfactory. The inspectors determined that the NLO Training Program was based on the SAT process.

The inspectors observed a NLO training titled "Bloodborne Pathogens," which was presented using an American Red Cross videotape. The inspectors found that the class was attentive and interested in the information presented. The instructor actively solicited feedback from the class following the tape presentation and provided amplifying information to the material discussed during the tape. The inspectors also observed an inplant training exercise on Procedure AOI-27, "Main Control Room Inaccessibility," which incorporated the licensed and non-licensed operators from one shift. The training department used the licensed operators in the NLO positions to give them an idea of some of the difficulties the NLOs experience during Control Room Abandonment. This also provided the NLOs an opportunity to interface with the licensed operators and to become familiar with the JPM process. The NLO instructors did a good job in planning and running the exercise. The instructors included pre-planned malfunctions in the exercise which required the use of alternate paths within AOI-27. The instructors identified several procedural and communication problems and provided excellent feedback to all members of the shift and to the facility.

The inspectors interviewed two incumbent NLOs, two NLO instructors, and the NLO instructor supervisor. The inspectors determined that the NLOs were satisfied with the initial and continuing training programs, however, they did comment that they felt training was understaffed and that they would like to have more OJT and under-instruction (parallel watchstanding) training time as part of the initial qualification program. The NLOs stated they were pleased with initiatives being undertaken by the training staff such as the development of a new NLO JTA and some combined training with the licensed operators. The NLOs were satisfied with the feedback process and believed the training department was responsive to their comments. The inspectors reviewed the trainee feedback process as outlined in Procedure NTI-204.30, "In-Training Evaluations," and found that it was adequately implemented. Interviews with the staff provided indication that the instructor staff was very conscientious and dedicated to providing the best possible training to the NLOs.

The inspectors reviewed the NLO Training Program to determine if it was based on the SAT process. The inspectors found that the JTA was adequately reflected in the initial and continuing training programs as implemented by Procedure TRN-11.1, "Nonlicensed Operator Initial and Continuing Training," Revision 0. The inspectors reviewed selected lesson plans and determined they were of appropriate detail and depth. The inspectors reviewed NLO instructor training and qualifications and determined the instructors met the qualification requirements identified in TRN-11.1.

3.5 Conclusions

The inspectors concluded that TVA's process for program evaluation and review was adequate. The inspectors concluded that the I&C Technician, EM, ESP, and NLO training programs were based on the SAT process and met regulatory requirements.

Within the areas inspected, no violations or deviations were identified.

4.0 Review of Quality Assurance "Qualified Reviewer" Training (IP 42700)

During the course of the inspection the inspectors reviewed the Master Site Procedures List and noted that a majority of the quality-related procedures were not required to be reviewed by QA personnel. Some of the quality-related and safety-significant procedures not requiring a review by QA personnel were the Emergency Operating Procedures, Emergency Plan Implementing Procedures, and Abnormal Operating Instructions. Procedure SSP-2.03, "Administration of Site Procedures," Revision 11, stated, "Quality-related procedures are required to be reviewed by QA personnel or others who are knowledgeable of QA requirements." These reviews were to be performed by technical reviewers knowledgeable of QA requirements within each organization.

The inspectors reviewed FIR WBFIR930097 provided by the QA department. The inspectors noted that during a QA self-assessment in July 1993, the QA department had identified that the independent qualified reviewer process and completion of PCFs had not been effectively implemented. Corrective actions for this FIR included changing SSP-2.03 to include the requirement that technical reviewers be qualified to perform QA reviews and that training documentation was to be maintained by each organization.

The inspectors reviewed training documentation of personnel who performed quality reviews of quality-related procedures. These records were provided to the inspectors four days after the exit meeting. The inspectors noted that one individual's training documentation consisted of an "indoctrination/orientation" checklist which was signed by the employee's supervisor. Procedure SSP-2.03 required a technical reviewer to be familiar with 12 procedures which contained QA requirements. The orientation checklist contained 23 procedures to be reviewed. Seven of the twelve procedures required by SSP-2.03 were not on the checklist. Furthermore, there was no evidence provided which demonstrated how the employees's supervisor concluded that proficiency as a QA reviewer had been achieved. The only evaluation criteria stated on the checklist was that the supervisor would discuss the important elements with the employee following the review (self-study) of the 23 documents listed on the checklist. Other training documentation reviewed indicated that other WBN organizations employed a self-study program with no apparent evaluation process.

Procedure SSP-2.03, Appendix D, stated, "TECHNICAL REVIEWERS are required to be familiar with the procedures listed below when reviewing quality-related procedures that are not reviewed by QA personnel." Suitable documentation for each technical reviewer was to be maintained by each organization. This qualification criteria did not provide any assurance that the training of personnel performing the QA review activity achieved and maintained suitable proficiency in accordance with 10 CFR 50 Appendix B. Procedure SSP-2.03 did not contain qualification instruction criteria of a type appropriate to the circumstances to ensure that personnel performing QA reviews were proficient and knowledgeable of QA requirements. This is identified as IFI 50-390 and 50-391/95-01-01.

5.0 Exit Interview

The inspection scope and findings were summarized on January 13, 1995, with those persons indicated in paragraph 1. The inspectors described the areas inspected and discussed in detail the inspection results. The Watts Bar representatives stated that they would like to provide additional information to the NRC concerning the QA review qualifications. This information was provided four days after the exit and is discussed in paragraph 4.0. Proprietary information is not contained in this report.

Item Number	Status	Description and Reference
390, 391/95-01-01	Open	IFI - Procedure SSP-2.03 was inadequate to assure proper qualification of QA reviewers of procedures (paragraph 4.0).

6.0 List of Acronyms and Initialisms

AOI	Abnormal Operating Instruction
CFR	Code of Federal Regulations
CRC	Curriculum Review Committee
EM	Electrical Maintenance
ESP	Engineering Support Personnel
FIR	Finding Identification Report
FSAR	Final Safety Analysis Report
I&C	Instrumentation and Control
IFI	Inspector Follow-up Item
IMI	Instrument Maintenance Instruction
INPO	The Institute of Nuclear Power Operations
IP	Inspection Plan
IPE	Individual Plant Evaluation
JA	Job Analysis
JPM	Job Performance Measure
JTA	Job Task Analysis
NI	Nuclear Instrument
NIS	Nuclear Instrument System

NLO	Non-licensed Operator
NOTP	Nuclear Operator Training Program
NQA	Nuclear Quality Assurance
NRC	U. S. Nuclear Regulatory Commission
NTI	Nuclear Training Instruction
OJT	On-the-Job Training
PCF	Procedure Change Form
PRA	Probabilistic Risk Assessment
QA	Quality Assurance
RE	Reactor Engineering
RHR	Residual Heat Removal
RO	Reactor Operator
SAT	Systems Approach to Training
SI	Surveillance Instruction
SRO	Senior Reactor Operator
SSP	Site Standard Practice
STA	Shift Technical Advisor
TA	Task Analysis
TPE	Task Performance Evaluation
TRN	Nuclear Power Training Procedure
TVA	Tennessee Valley Authority
WBN	Watts Bar Nuclear
WO	Work Orders