

B. Browns Ferry Nuclear Plant (BFN)

1. R-81-31-BFN-01, Inadequate Procedural Control of Operator Training

- a. The BFN standard practice BFA 75 did not implement the requirements of H. R. Denton's letter as implemented in DPM N78A13, nor had it been revised to implement OQAM revisions.
- b. Several division procedures providing guidance in operator training had not been implemented into approved plant instructions.
- c. Revisions of the BFN OQAM and of division procedures providing guidance in operator training had not been implemented into approved plant instructions.
- d. Because of a failure to implement division procedures as required, the operator training (both license and nonlicense) being conducted at BFN lacked the procedural control required for an activity affecting nuclear safety.
- e. There was a failure to follow a division procedure in that DPM N75A5, which is self implementing, was not being followed in presentation of the Nuclear Steam Generating Plant Operator (NSGPO) program; the outline being followed was that of DPM N78A13 for which there were no daily lesson plans.
- f. There was a failure by the Plant Operation Review Committee (PORC) to review the adequacy of the operator training program.

Recommendations

- a. Action should be taken to revise BFN standard practice BFA 75 to meet all current NRC and TVA requirements. (See section V.A.3.a.(1) and (2) for details.) [R]
- b. Action should be taken following resolution of conflicts in the DPMs to implement all division procedures as required in DPM N71A1 into approved plant instructions thereby establishing instructional control over all BFN operator training. (See section V.A.3.a.(1) through (11) for details.) [R]
- c. An immediate request through the NCO should be initiated by plant management to obtain assistance from the nuclear division training branch in developing daily lesson plans for the NSGPO program being presented and revision of DPM N75A5 as prescribed in DPM N75A5. (See section V.A.3.a.(10) for details.) [R]

- d. The BFN plant staff should review and reevaluate the present method of identifying and tracking implementation of corporate level procedures and revisions to these procedures. (See section V.A.3.a.(1) through (11) for details.) [E]
 - e. The BFN plant management should require an immediate review by PORC of the operator training program for adequacy and should procedurally establish a frequency for future reviews. (See section V.A.3.a.(11) for details.) [R]
2. R-81-31-BFN-02, Inadequate Management Control of Operator Training Activities
- a. The working relationships between the plants and the training branch were inadequate.
 - b. The responsibilities of the plant training review board were limited.
 - c. There was a failure to provide guidance in the selection and certification of plant instructors.
 - d. There was inadequate review and evaluation of operator training.
 - e. There were many instances of procedural control and implementation problems which were indicative of problems in management of the operator training activities.

Recommendations

- a. There should be an evaluation of the plant and training branch responsibilities in reference to onsite operator training and proper working relationship established. (See section V.A.4.a for details.) [E]
 - b. There should be an evaluation of the plant training review board duties and consideration given to expanding these duties. (See section V.A.4.b for details.) [E]
 - c. Plant management should provide guidance in how plant instructors will be selected and certified. (See section V.A.4.c for details.) [R]
 - d. Plant management should, in cooperation with the NCO, establish a method of review and evaluation of operator training. (See section V.A.4.e and f for details.) [R]
3. R-81-31-BFN-03, Operator Training Program Inadequacies
- a. The plant training standard practice BFA 75 was inadequate in scope and content.

- b. The method of documentation and records storage for operator training was inadequate.
- c. The training staff at BFN was inadequate in number to administer all phases of operator training.
- d. The training facilities at BFN were inadequate.

Recommendations

- a. BFN standard practice BFA 75 should be revised to provide the scope and content needed to ensure all present NRC and TVA requirements are met and to establish instructional control over all operator training activities being conducted at BFN. (See section V.A.5.b for details.) [R]
 - b. The method of operator training documentation and records storage should be reviewed and revised to establish consistency and retrievability. (See section V.A.5.c for details.) [R]
 - c. An evaluation of the operator training that is to be conducted each year at the plant and a task analysis to determine the manhours required to accomplish this training should be completed and the training staff adjusted based on the results. (See section V.A.5.d.(1) for details.) [E]
 - d. The plant staff should, as an interim measure, try to upgrade the present training facilities and initiate a study with assistance from the training branch and, if determined inadequate, present to the NCO a recommendation as to what is needed in the way of classrooms, office space, study area, storage, etc., for operator training at BFN. (See section V.A.5.e for details.) [E]
4. R-81-31-BFN-04, Failure to Meet NRC Commitments in Certifying Plant Instructors

There was a failure to certify instructors conducting license training as committed to in TVA's November 10, 1980 response to H. R. Denton's (NRC) March 28, 1980 letter.

Recommendation

BFN management should initiate changes to plant instructions to implement the requirement to certify all instructors involved in licensed operator training or retraining and establish a schedule to complete certification as soon as practicable. (See section V.A.6.a for details.) [R]

C. Sequoyah Nuclear Plant (SQN)

1. R-81-31-SQN-01, Inadequate Procedural Control of Operator Training

- a. There was improper implementation of division procedures which resulted in plant management not having adequate procedural control of licensed operator training or retraining in that the present Administrative Instruction (AI) 14 (PORC-reviewed, Superintendent-approved) did not describe the hot license or requalification training programs being administered. Most licensed operator training was established by Operations Section Instruction Letters-Training (OSLTs) which are not reviewed by PORC, concurred with by the plant QA Staff, or approved by the Plant Superintendent.
- b. There was a programmatic problem in that there were several cases of failure to implement and/or failure to follow procedures.
- c. There was a failure by licensed operators to complete required General Employee Training (GET).
- d. The NSGPO training was being presented without approved daily lesson plans.

Recommendation

- a. Promulgate an Administrative Instruction (PORC-reviewed, concurred with by the plant QA Staff, and Superintendent-approved) which includes all current regulatory and TVA requirements and consolidates all operator training and retraining programs. This procedure should also include the training that is to be done at the Power Operations Training Center. See section V.A.3.b.(1) for details. [R]
- b. All division procedures should be properly implemented and followed and a review and evaluation of how the plant staff ensures proper procedure implementation is accomplished in a timely manner and that these instructions are followed should be initiated. (See section V.A.3.b.(1) through (11) for details.) [R]
- c. Action should be taken to ensure that all operating personnel receive their GET and retraining as required. (See section V.A.3.b.(11) for details.) [R]
- d. An immediate request through the NCO should be initiated by plant management to obtain assistance from the nuclear division training branch in developing daily lesson plans for the NSGPO program being presented and revision of DPM N75A5 as prescribed in DPM N75A5. (See section V.A.3.a.(10) for details.) [R]

2. R-81-31-SQN-02, Inadequate Management Control of Operator Training Activities

- a. The working relationships between the plants and the training branch was inadequate.
- b. The responsibilities of the plant training review board were limited.
- c. There was a failure to provide guidance in the selection and certification of plant instructors.
- d. There was inadequate review and evaluation of operator training.

Recommendations

- a. There should be an evaluation of the plant and training branches responsibilities in reference to onsite operator training and the proper working relationship established. (See section V.A.4.a for details.) [E]
- b. There should be a review of the plant training review board duties and consideration given to expanding these duties. (See section V.A.4.b for details.) [E]
- c. Plant management should provide guidance in how plant instructors will be selected and certified. (See section V.A.4.c for details.) [R]
- d. Plant management should, in cooperation with the NCO, establish a method of review and evaluation of operator training. (See section V.A.4.e and .f for details.) [R]

3. R-81-31-SQN-03, Operator Training Program Inadequacies

- a. The training staff at SQN is inadequate in number to administer all phases of operator training.

Recommendation

- a. An evaluation of the operator training that is to be conducted each year at the plant and a task analysis to determine the manhours required to accomplish this training should be completed and the size of the training staff adjusted based on the results. (See section V.A.5.d.(1) for details.) [E]

4. R-81-31-SQN-04, Failure to Meet Commitments to NRC and Noncompliance with 10CFR55, Appendix A

- a. Instructors involved with licensed operator training and retraining were not certified as committed to in TVA's response to H. R. Denton's letter of March 28, 1980.

- b. There was no documentation in the licensed operator requalification training files to indicate that plant procedure changes (except for emergency and abnormal operating instructions) and design changes were being reviewed by licensed individuals as required by 10CFR55, Appendix A, sections 3.b and 3.c.
- c. There was no mechanism for ensuring that new AOIs and EOIs are incorporated into the schedule for periodic review as required by 10CFR55, Appendix A, section d. As a result of this deficiency, newly issued AOIs 25.1 through 25.8 and 26.0 were not scheduled for review.

This deficiency violates Technical Specification 6.4.1.

- d. A portion of the requalification training documentation was filed in cabinets which were unqualified for storage of QA documents.

Recommendation

- a. Initiate changes to plant instructions to implement the requirement to certify all instructors involved in licensed operator training or retraining and establish a schedule for completing certification as soon as practicable. (See section V.A.6.a for details.) [R]
- b. Initiate changes to plant instructions and training schedules to implement all the requirements of 10CFR55, Appendix A, for plant and procedure change review into a PORC-reviewed, Superintendent-approved requalification program. This deficiency should also be evaluated for reportability to NRC. (See section V.A.6.b for details.) [R]
- c. All training documentation records considered QA documents should be stored in approved storage cabinets. (See section V.A.3.b.(12) for details.) [R]

D. Watts Bar Nuclear Plant (WBN)

1. R-81-31-WBN-01, Inadequate Procedural Control of Operator Training

There did not exist an approved procedure (PORC-reviewed, concurred with by QA, and Superintendent-approved) establishing the training and retraining requirements presently imposed by NRC. The Standard Practice on training, WB 12.7, did not set forth any detailed program requirements other than referencing the OQAM which is not up to date with regard to current regulatory requirements. Furthermore, WBN Standard Practices do not receive PORC review or plant QA Staff concurrence. The Operations Section Letter-Training (OSLT) included most of the current requirements but receives no PORC review, no plant QA Staff concurrence, and no Superintendent approval. Administrative Instruction 10.3 was issued as a means for distributing DPM N78A13, referencing the OSLT for detailed instructions. In addition to the above, several deficiencies in the training program established by the OSLT were identified. These problem areas are discussed further in the details section of this report.

Recommendation

- a. Promulgate an Administrative Instruction (PORC-reviewed and Superintendent-approved) which includes all current regulatory and TVA requirements and consolidates all operator training and retraining programs. This procedure should also include the training to be done at the Power Operations Training Center. (See section V.A.3.c.(1) through (12) for details.) [R]
 - b. An immediate request through the NCO should be initiated by plant management to obtain assistance from the nuclear division training branch in developing daily lesson plans for the NSGPO program being presented and revision of DPM N75A5 as prescribed in DPM N75A5. (See section V.A.3.a.(10) for details.) [R]
2. R-81-31-WBN-02, Inadequate Management Control of Operator Training Activities
- a. The working relationship between the plants and the training branch was inadequate.
 - b. The responsibilities of the plant training review board were limited.
 - c. There was a failure to provide guidance in the selection and certification of plant instructors.
 - d. There was inadequate review and evaluation of operator training.

Recommendations

- a. There should be an evaluation of the plant and training branches responsibilities in reference to onsite operator training and the proper working relationship established. (See section V.A.4.a for details.) [E]
 - b. There should be a review of the plant training review board duties and consideration given to expanding these duties. (See section V.A.4.b for details.) [E]
 - c. Plant management should provide guidance in how plant instructors will be selected and certified. (See section V.A.4.c for details.) [R]
 - d. Plant management should, in cooperation with the NCO, establish a method of review and evaluation of operator training. (See section V.A.4.e and .f for details.) [R]
3. R-81-31-WBN-03, Operator Training Program Inadequacies
- a. The training staff at WBN is inadequate in number to administer all phases of operator training.

Recommendation

- a. An evaluation of the operator training that is to be conducted each year at the plant, and a task analysis to determine the manhours required to accomplish this training should be completed and the training staff adjusted based on the results. (See section V.A.5.d for details.) [E]
4. R-81-31-WBN-04, Failure to Meet NRC Commitments in Certifying Plant Instructors

There was a failure to certify instructors conducting license training as committed to in TVA's November 10, 1980 response to NRC.

Recommendation

- a. Initiate changes to plant instructions to implement the requirement to certify all instructors involved in licensed operator training or retraining and establish a schedule for completing certifications as soon as practicable. (See section V.A.6.a for details.) [R]
5. R-81-31-WBN-05, FSAR Update in the Area of Training
- Chapter 13.2 of the WBN FSAR did not include the requirement that RO and SRO license candidates receive three months

of on-shift training as an extra man on shift per H. R. Denton's March 28, 1980 letter or the 10 CFR 55, Appendix A, item 3C, requirement that procedure changes, design changes, and license changes be reviewed by all licensees.

Recommendation

Initiate action to have the WBN FSAR revised to include all the requirements of 10 CFR 55 and Denton's March 28, 1980 letter. (See section V.A.3.c.(6) for details.) [R]

E. Power Operation Training Center (POTC)

1. R-81-31-POTC-01, Inadequate Procedural Control of Operator Training

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- a. There was a failure by the POTC management staff to follow division procedures (DPMs) and the OQAMs in the implementation of division training activities through approved POTC instructions, which resulted in (1) a lack of instructional control by management in the area of license and nonlicense training, (2) a lack of an approved method of document control, (3) a lack of control of evaluation and documentation of training and (4) a lack of review and evaluation of training.
 - b. The NSGPO program was being presented without the use of approved daily lesson plans. The DPM N75A5, which is the only self implementing DPM controlling operator training activities, had not been revised to provide daily lesson plans for the program outline now being used and was not being followed.

Recommendations

- a. All applicable division procedures should be implemented into POTC instructions to provide (1) instructional control of license and nonlicense training, (2) a method of document control, (3) control of evaluation and documentation of training, and (4) a method of review and evaluation to promptly identify conditions adverse to quality. (See section V.A.3.d.(1) through (9) and V.A.4.e for details.) [R]
 - b. The DPM N75A5 should immediately be revised to provide daily lesson plans for the NSGPO program and POTC instructors directed to follow them. (See section V.A.3.a.(10) and V.A.3.d.(10) for details.) [R]
2. R-81-31-POTC-02, Inadequate Management Control of Operator Training Activities
- a. There was not in place at the POTC management control through properly implemented instructions for control of the licensed and nonlicensed operator training activities.
 - b. Managers at the POTC had not implemented and in some cases were not following division procedures or the OQAM.
 - c. Managers at the POTC had allowed NSGPO training to continue for a two year period without revision of DPM N75A5 which would provide approved daily lesson plans.

- d. There was not in place a method of review and evaluation of operator training to ensure conditions adverse to quality of training were identified and corrected.

Recommendations

- a. Proper procedural control of licensed and nonlicensed training activities should be established. (See section V.A.3.d(1) through (10) for details.) [R]
- b. The POTC management staff should immediately be required to follow NUC PR division procedures. (See section V.A.3.d.(1) through 10 for details.) [R]
- c. The POTC management staff should require that all operator training activities at the POTC be controlled by approved instruction. (See section V.A.3.d.(1) through (10) for details.) [R]
- d. The POTC management staff should establish a method to assure that conditions adverse to quality in operator training are promptly identified and corrected. (See section V.A.4.e for details.) [R]
- e. The POTC management should review and evaluate their method of identifying and tracking implementation of corporate level procedures and revisions to these procedures. (See section V.A.3.a.(1) through (11) for details.) [E]
3. R-81-31-POTC-03, Operator Training Program Inadequacies
- a. The training staff at the POTC is inadequate in number to administer all phases of operator training.

Recommendation

- a. The number of NSGPO instructors and PWR simulator instructors should be increased to effectively handle the operator training. (See section V.A.5.d.(2) for details.) [E]
4. R-81-31-POTC-04, Failure to Meet Commitments to NRC and Noncompliance with 10CFR50, Appendix B
- a. There was a failure to certify instructors conducting license training as committed to in TVA's November 10, 1980 response to NRC's letter from H. R. Denton dated March 28, 1980.
- b. The POTC had failed to implement sections of the OQAM and was in noncompliance with 10CFR50, Appendix B.

Recommendations

- a. Initiate changes to POTC instructions to implement the requirement to certify all instructors involved in licensed operator training or retraining and establish a schedule for certifying these instructors as soon as practicable. (See section V.A.6.a for details.) [R]
- b. The POTC staff should immediately translate the applicable sections of the OQAM into approved POTC instructions and implement them to ensure compliance with 10CFR50, Appendix B. This should also be evaluated for reportability to NRC. (See section V.A.6.c for details.) [R]

F. Office of Power Quality Assurance Staff (OPQA)

1. R-81-31-OPQA-01, Failure to Audit

- a. The Office of Power Quality Assurance and Audit (QA&A) staff did not have a program to ensure adequate audits in the area of operator training and they had not performed an audit in several training areas, consequently, this allowed inadequacies existing in the area of operator training to exist for a lengthy period of time.
- b. The Office of Power QA&A had not considered the operator training as part of the quality assurance program, consequently, there had not been an audit to ensure that 10CFR50, Appendix B, criteria were being met in the area of operator training.

Recommendation

The operator training should be considered by the OPQA&A as an activity affecting nuclear safety which should meet applicable 10CFR50, Appendix B, criterion and should be included in the OPQA&A program for future periodic audits. This item should be considered for reportability to NRC. (See sections V.A.6.d for details.)
[R]

V. DETAILS

A. New Open Items1. Failure to Implement NRC Requirements Resulting in Plant Operational Quality Assurance Manual (OQAM) Deficiencies (R-81-31-NCO-1)

In March of 1980, H. R. Denton of the Nuclear Regulatory Commission (NRC) issued a letter to "All Power Reactor Applicants and Licensees" on the subject of "Qualification of Reactor Operators." This letter set forth revised criteria in the area of operator experience and training. Enclosure 1 of this letter detailed the revised criteria and the effective date for implementation. Enclosures 2 and 3 provided guidance for establishing training programs in heat transfer, fluid flow, thermodynamics, and mitigating core damage. Enclosure 4 detailed control manipulations for requalification programs. Approximately eight months later, in November 1980, TVA responded to H. R. Denton's letter committing to each requirement.

In January 1981, the nuclear plant OQAMs were revised to reference DPM N78A13 which was to implement H. R. Denton's letter. The DPM did not implement Mr. Denton's experience or training requirements until August 21, 1981, 16 months after the date of Mr. Denton's letter and 9 months following TVA's commitment to NRC in the November 10, 1980 reply. When the NSRS reviewed the OQAMs a year after the TVA reply to Mr. Denton's letter, it was found that it (OQAM) still did not meet the requirements of H. R. Denton's letter and that the OQAM and the DPM N78A13 were in conflict in many areas.

Some examples are:

- a. Paragraph 1.4.3.1 on page 8 of Part III, section 6.1 of the OQAM requires the operation supervisors who must hold an SRO license to have only one year of nuclear experience. H. R. Denton's letter requires that an SRO have two years of nuclear plant experience and have at least six months at the plant where he seeks a license.
- b. Paragraph 1.5.2.1 on page 14 of Part III, section 6.1 of the OQAM, did not include training on heat transfer, fluid flow, thermodynamics, control to mitigate an accident in which the core is severely damaged, nor was there increased emphasis on plant transients. The Denton letter required this training and TVA committed to provide it.

- c. Paragraph 1.5.5.1.1, pages 16, 17, and 18 of part III, section 6.1 (requalification program), did not include the requalification training requirements of H. R. Denton's letter.
- d. Paragraph 1.5.5.1.2, page 18 of Part III, section 6.1, did not meet the requirements of H. R. Denton's letter in reference to reactivity changes.
- e. Paragraph 1.5.5.1.3, page 19 of Part III, section 6.1, did not meet the requirements of H. R. Denton's letter in reference to requalification training grade requirements.
- f. Paragraph 2.1.1.5, page 25 of Part III, section 6.1, states that hot license training can be accomplished without use of a simulator. This did not meet the requirements of H. R. Denton's March 28, 1980 letter.

The TVA topical report on quality assurance and the OQAM states that the training branch is responsible for updating the OQAM in the area of training (part III, section 2.1, paragraph 1.3.7). This, however, does not relieve the Plant Superintendent from the responsibility of taking action to have corporate level instruction inadequacies resolved. This is substantiated in the OQAM, part I, section 2.1, paragraph 1.3.11, as quoted below:

"The primary responsibility and authority for reactor operation and safety at each plant is vested in the Plant Superintendent.

Plant quality assurance and quality control are direct responsibilities of the Plant Superintendent. Through assignments to his supervisors, he assures the operational instructions, work instructions, and checklists are prepared in accordance with established quality assurance policies and requirements; that work is to be performed in accordance with these approved documents; and that results are documented and proper records maintained. The Plant Superintendent is also responsible for the adequacy and completeness of the training and qualifications of plant personnel." Furthermore, the OQAM, part I, section 2.1, paragraph 1.3.12, states that:

"The plant quality assurance (QA) staff is responsible for assisting the Plant Superintendent in developing, planning, initiating, and directing a comprehensive nuclear plant quality assurance program which implements the Division of Nuclear Power (NUC PR) quality assurance program as detailed in procedures of the plant Operational Quality Assurance Manual. The plant QA staff is to evaluate the effectiveness

of the program and make recommendations to the Plant Superintendent regarding its implementation." The plant QA staff was deficient in performing this responsibility in the area of training.

With the above statements of responsibility in mind, we reference paragraph 3.0, page 2, Part III, section 8.1 of the OQAM which states "Revisions or additions to the manual (OQAM) may originate with any person who sees a need. Review of procedures in this manual is a continuing function and changes are initiated as required based on its use." Failure to implement NRC requirements into the OQAM is significant in that an activity related to nuclear safety was not being controlled by written procedures.

The OQAM had remained deficient for a period of 20 months following the issuance of H. R. Denton's March 28, 1980 letter (A02 800402 003) and 12 months following TVA's reply dated November 10, 1980 (A27 801112 005).

The NUC PR training branch had the assigned responsibility of revisions of the OQAM in the area of training, and the plant staff also has responsibility for assuring that NRC requirements are implemented into plant procedures and that they are followed.

The training, retraining, and experience requirements of H. R. Denton's March 28, 1980 letter had not been implemented into the the OQAM.

The NSRS concluded that the training branch and the plant staffs should take action to initiate update of the OQAM part III, section 6.1 to implement the NRC requirements contained in H. R. Denton's March 28, 1980 letter, and that the plant staff and training branch should consider a review and evaluation of their responsibilities and methods for ensuring QA-related management controlling documents are revised to meet current NRC requirements.

2. Inadequate and Conflicting Corporate Level Management Controlling Documents (R-81-31-NCO-02)

There are presently several corporate level documents which provide the plants and POTC with guidance in the area of operator training. Some of these are:

- o Part III, section 6.1 of the OQAM
- o Division Procedure N78A13
- o Division Procedure N7704
- o Division Procedure N75A8

- Division Procedure N79A12
- Division Procedure N75A5
- Division Procedure N77TC3

In accomplishing this review, the NSRS reviewed NUC PR DPMs and the OQAM in order to determine if NUC PR had implemented all NRC requirements and that they were adequate and consistent in corporate direction provided. It was the conclusion of NSRS that some NRC requirements had not been implemented and that inadequate and contradictory direction was being provided the nuclear plants and the POTC.

The following are five examples of some of the problems identified by the NSRS during the review. There were over 40 other items similar to these identified; these are contained in Appendix A of this report.

- a. DPM N78A13 did not implement the commitment to use intelligence testing in the selection of students for the NSGPO program (section III.A on page 9). TVA made this commitment in the TVA Nuclear Program Review dated May 1970 (Blue Book).
- b. DPM N78A13 in paragraph B of section III on page 9 references DPM N79A12 and then makes a statement that is contradictory to N79A12. DPM N78A13 states that the Chief, Nuclear Training Branch shall review and approve all nuclear programs and changes to programs. N79A12 states that the Assistant Director of Nuclear Power (Operation) is responsible for training review and that the Nuclear Operation Staff will implement the review. NOTE: The Assistant Director (Operation) position no longer exists and the Nuclear Operation Staff no longer exists following the recent reorganization.
- c. DPM N78A13, section III.B.IV.A.2- IV.A.5 describes the outline for the NSGPO program. This is an outline for a 26-month program. This is contradictory to another DPM, N75A5, which contains the daily lesson plans for the NSGPO program. DPM N75A5 is not accurate in that it has not been revised as required for implementing the 26-month program as approved in 1979.
- d. DPM N78A13, section IV.B, which outlines an annual 40-hour Assistant Unit Operator (AUO) retraining program, is in conflict with DPM N7704, which also describes an annual 40-hour program.

The reference given in the DPM N78A13 is ANS 3.1, March 13, 1981 draft, paragraph 5.3.5 and 5.4. In reviewing these paragraphs of ANSI 3.1, the NSRS concluded that the intent here was not as interpreted by

NUC PR but was to provide guidelines for initial training, such as TVA's NSGPO program which is adequate in reference to these paragraphs.

- e. DPM N78A13, section V.F.5 on page 54, lists the members of the Plant Training Review Board. This listing does not agree with the BFN Chapter 13 of the FSAR or with the January 15, 1981 revision of the OQAM.

The inadequacies and the discrepancies between these documents had existed since August 21, 1981 when N78A13 was issued with a scope that was to include all operator training.

The Plant Superintendents and the POTC staff have the responsibility to ensure timely review of newly issued division procedures, resolve inadequacies and discrepancies, and issue instructions within a 45-day time frame per DPM N71A1. The DPM N78A13, which was issued August 21, 1981, was prepared by the POTC staff and was reviewed by the plants during the summer of 1981 prior to its approval by the division director. Failure to identify and resolve the inadequacies and discrepancies in the different documents at the time has resulted in the inadequate, contradictory corporate level procedures which presently exist.

In discussing this problem with the plant staff at BFN and the POTC, the NSRS was told that some of the problem areas had been discussed but that nothing had been resolved. There had been no formal action to revise any of the DPMs or the OQAM.

This item is of safety significance in that safety-related activities are being directed by corporate management procedures which are inadequate and do not agree. It is concluded by NSRS that all of the listed documents should be brought into agreement.

In order to reduce the probability of future conflict between corporate level instructions in the area of training it would seem prudent to consolidate the requirements of the listed documents relating to training. This could be achieved by deleting all program requirements included in the OQAM and reference DPM N78A13 and incorporating the requirements and provisions of the other DPMs on training into DPM N78A13.

3. Inadequate Procedural Control of Operator Training (Failure to Revise, Implement, Improper Implementation, and Failure to Follow) [R-81-31-BFN-01, R-81-31-SQN-01 R-81-31-WBN-01, R-81-31-POTC-01, R-81-31-NCO-03]

DPM N71A1 states, "All division procedures shall be implemented within 45 days of receipt by the responsible organization unless other implementing instructions are given in the

procedure." The only exception to this is DPM N75A5 (NSGPO daily lesson plans) which is the only self implementing DPM controlling operator training.

DPM N71A1 also states, ". . . division procedures shall be implemented through approved plant instructions. When the division procedure affects CSSC items, the resulting plant instruction shall be reviewed by PORC, concurred with by the plant QA staff, and approved by the plant superintendent."

The OQAM, part III, section 2.2, paragraph 4.0, states, "Activities which may affect nuclear safety shall be prescribed in documented procedures and instruction. The requirements of such procedures and instructions are mandatory and shall be complied with by responsible organizations and individuals." Furthermore, failure to follow and/or implement procedures controlling activities related to nuclear safety is not consistent with TVA's philosophy of nuclear safety first.

a. Browns Ferry Nuclear Plant (BFN) [R-81-31-BFN-01]

The following are some detailed examples of procedural control problems at Browns Ferry in the area of operator training.

- (1) The training and retraining of licensed operators at BFN was initially controlled by standard practice BFA75. The training shift engineer is responsible for coordinating and administering all phases of training and retraining associated with operating personnel. The BFA 75 describes the different programs that are used for training and retraining of reactor operators and senior reactor operators. Documentation and record storage requirements are also described. In March of 1980, one year after the TMI incident, H. R. Denton (NRC) issued a letter to all licensees and license applicants outlining additional experience and training requirements. In November 1980 TVA responded to the NRC letter committing to each requirement. In January 1981 the BFN plant OQAM, part III, section 6.1, was revised to reference DPM N78A13 which in turn was to contain all of the requirements of H. R. Denton's letter (which later became part of NUREG-0737). DPM N78A13 was issued on August 21, 1981. The Browns Ferry standard practice BFA 75 was reviewed by the NSRS and it was found that it had not been revised since 1978 and that none of the current requirements of H. R. Denton's letter included in DPM N78A13 had been incorporated into the standard practice.

It was the conclusion of the NSRS after discussing this problem with various members of the plant staff that two major factors contributed to their not revising the BFA 75. (1) They disagreed in some areas on the content of DPM N78A13 and (2) they did not believe that they could revise their NRC approved requalification program.

10CFR50.53(i-1) states that "Within three (3) months after issuance of an operating license, the licensee shall have in effect an operator requalification program which shall as a minimum meet the requirements of 10CFR55 Appendix A. Notwithstanding the provisions of 50.59, the licensee shall not except as specifically authorized by the commission, make a change in an approved operator requalification program by which the scope, time allotted for the program, or frequency in conducting different parts of the program is decreased." Implementation of N78A13 by revision of BFA 75 would have increased the scope and made the requalification program much more stringent in grading requirements and would not have in any way violated NRC regulations, in fact, this revision would have ensured that TVA was in compliance with NRC regulations. It was the conclusion of the NSRS that activities in license training was not procedurally controlled by plant management in that BFA 75 did not accurately describe the hot license and requalification training programs as they were being implemented.

It was also found by the NSRS that:

- (2) The BFN standard practice BFA 75 had not been revised to include a January 15, 1981 revision to part III, section 6.1, paragraph 1.5.5.1.5 of the OQAM which established a weekly frequency of distribution of design changes, procedure changes, and license changes. BFA 75 still stated that this distribution would be done on a periodic basis.
- (3) The DPM N7505 had not been implemented into an approved plant instruction. At BFN there is a backup control room for each unit which provides a method for the operators to safely shutdown the units and depressurize them to the shutdown cooling mode of RHR if for some reason the main control room should become uninhabitable.

In 1975 the division procedure (DPM N7505) was issued addressing annual drills to be conducted utilizing the backup control room which would

familiarize the operators and refresh them on an annual basis. There is no evidence that these drills have been conducted recently.

The NSRS considers this to be an item which can compromise nuclear safety. This should immediately be addressed by the plant staff, the DPM implemented into an approved plant instruction, and immediate backup control room drills conducted.

- (4) The DPM N7704 had not been implemented into an approved plant instruction. The AUOs in NUC PR are to be given an annual 40 hour training session to help maintain their level of proficiency and ensure safe operation of the plant. In 1977 the division procedure (DPM N7704) was issued which outlined the scope, time, and frequency of this training. The NSRS could not find evidence that DPM N7704 had been implemented into an approved plant instruction. The plant training shift engineer stated that they were teaching it directly from the DPM. It was also found that there were no detailed daily lesson plans developed for this training.

It was the conclusion of the NSRS that plant management did not adequately control AUO training in that the DPM had not been implemented in an approved plant instruction and that immediate action should be taken by the BFN management to implement this DPM and develop daily lesson plans to present the training.

- (5) The DPM N75A8 which gives division guidance in preparation of a plant systems familiarization study guide had not been implemented into an approved plant instruction. The plant familiarization study guide was not controlled in program content, method of revision and update, and evaluation and documentation. The study guide is a portion of the NSGPO fourth period of training. The study guide had not been updated for about two years.
- (6) DPM N77A5 which provides guidance in scheduling NRC examinations (same as N7TTC3) had not been implemented into an approved plant instruction. (This is another example of outdated DPMs. The Nuclear Operations Staff no longer exists and training center is handling this.)
- (7) DPM N80A5 which provides guidance on how certification of operators being submitted for licensing will be handled had not been implemented into an approved plant instruction.

- (8) The division procedure N79A12, issued in 1979, which advised the plant that annual review by the Assistant Director (Operations) will be done on all training required by division procedure had not been implemented into an approved plant instruction. (Now needs to be revised following reorganization of NUC PR.)
- (9) The DPM N77TC6, issued in 1977, which advises the plant and training center on how plant operators simulator training will be scheduled had not been implemented into an approved plant instruction. (DPM now needs to be revised following reorganization of NUC PR.)
- (10) There was a failure of plant management to follow the division procedure N75A5 in implementation of NSGPO training. (See section V.A.d.10 for additional details.)

There was an NSGPO class going through third period, step 2, using an unapproved, uncontrolled outline listing the subjects to be taught for each day and number of hours to be presented. This outline does not follow the lesson plans provided in DPM N75A5 nor were there any lesson plans prepared or being used by the plant NSGPO instructor. The NSGPO instructors had no guidance as to content of any subject listed to be taught.

The NSGPO, student III, step 2, is primarily instruction on plant systems and procedures--some of the most important training a student will receive prior to going on shift in the plant.

Plant management had failed to follow division procedure, failed to initiate revisions they know were needed in the DPM N75A5, and failed to provide the instructor guidance in this activity related to nuclear safety. The resulting NSGPO classes are uncontrolled in the area of daily lesson content.

The classroom instructors are each preparing and presenting what they think is appropriate and not as it should be--by approved daily lesson plans as provided in DPM N75A5.

The NSRS believes that immediate steps should be taken to develop interim daily lesson plans, that the plants and the division training branch should work together in the development of daily lesson plans for the NSGPO program being presented, and immediate revision to DPM N75A5 be initiated.

The safe operation of a nuclear power plant depends on NUC PR establishing procedural control over plant activities related to nuclear safety, in this case the necessary guidance in training and retraining of reactor operators. The procedural control at the corporate level must be correctly implemented at the plant if TVA is to carry out the philosophy of QA through procedural control of plant activities related to nuclear safety. There did not appear to be an adequate method of identifying and tracking new and revised division procedures to ensure correct and timely implementation at the plant. When problems were identified in a DPM by the plant, instead of getting the problems resolved, they have sometimes hesitated to implement the new or revised DPM into an approved plant instruction.

The NSRS believes that immediate action should be taken to resolve all conflicts in the DPMs and that all division procedures should be implemented into approved plant instructions. Furthermore, the plant staff should consider a reevaluation of their present method of identifying and tracking implementation of corporate level procedures when newly issued or revised.

- (11) The Browns Ferry Technical Specification 6.2.B.4.j and the BF OQAM, part I, section 6.2 as implemented by standard practice BF 1.10, requires that the PORC review the plant training program for adequacy.

Since the incident at TMI in March of 1979, there have been many changes made in the initial and retraining programs for reactor operators. The majority of the changes were contained in H. R. Denton's letter and NUREG-0737. NSRS reviewers could find no evidence that the PORC had performed a review of the BFN operator training since the TMI accident to assure its adequacy. This failure to follow the plant technical specification, the OQAM, and the standard practice has a direct impact on nuclear safety in that procedures controlling activities affecting nuclear safety were not followed. The charter of PORC as established in the Browns Ferry OQAM and as implemented in standard practice BF 1.10 does not, however, state the frequency of this review. The NSRS believes that the BFN staff should establish a frequency of review by the PORC of training adequacy and should immediately review the operator training programs for adequacy and advise the Plant Superintendent as to their findings.

b. Sequoyah Nuclear Plant (SQN) [R-81-31-SQN-01]

The following are some examples of inadequate procedural control at the Sequoyah Nuclear Plant.

- (1) DPM N78A13 was revised on August 21, 1981. At the time of this review, Administrative Instruction (AI) 14 had not been revised to incorporate the requirements of DPM N78A13. This is a violation of corporate level procedure and therefore is of safety significance. The significance of this violation is amplified by the fact that of DPM N78A13 is the corporate level document which implements the requirements of H. R. Denton's March 28, 1980 letter which is required by Technical Specification 6.4.1.

It was noted by NSRS that the requirements of H. R. Denton's letter were incorporated into a section instruction letter (OSLT 11) which receives no PORC review, no plant QA staff concurrence, and no superintendent approval.

Since AI-14 had not been revised to include current NRC requirements and OSLT-11 had been revised to include these requirements, there is a conflict in what the SNP license training program is supposed to consist of. The OSLT includes the current requirements but is not properly approved; AI-14 is not current but is properly approved. This is inadequate management control of operator training.

- (2) The SNP OQAM, paragraph 1.5.5.1.3 of part III, section 6.1, states that the Assistant Plant Manager (Operations) is a member of the training review board. AI-14 does not designate which assistant is to be on the board. Instruction is inadequate.
- (3) The SNP OQAM, part III, section 6.1, paragraph 1.5.5.1.5 requires that:

"The shift engineer shall be supplied weekly with facility design changes, procedure changes, and facility license changes of review by each licensee."

AI-14 does not incorporate this requirement. OSLI-11 states that this training is to be done "periodically" which is in conflict with the OQAM. Since this training is a part of the requalification training program for licensed operators as required by 10CFR55, Appendix A, it should be a part of an approved program.

- (4) DPM N75A5, "Nuclear Steam Generating Plant Operator (NSGPO) Training Program," (same as that detailed in section V.3.a.10 and section V.3.d.10).
- (5) DPM N75A8, "Plant Systems Familiarization Study Guide," requires in part that:

"Each plant superintendent shall be responsible for developing a plant system study guide for use by the nuclear student generating plant operators during the fourth period of the training program.

The program used at SQN has not been updated to reflect procedure or design changes nor was there a method established for updating. Plant instructions are inadequate.

- (6) Periodic review of AOIs and EOIs was administratively controlled by OSLT-1. This training was a part of requalification training for licensed operators and should be controlled by a properly approved (PORC reviewed, superintendent approved) procedure. Furthermore, there was no method established for adding new EOIs and AOIs to the list of procedures to be revised. As a result of this lack of control, newly issued AOIs 25.1 through 25.8 and 26.0 were not incorporated into requalification training; thus, plant instructions were inadequate.

Several instances were observed at SQN which are categorized as failure to follow procedure. These are described below.

- (7) DPM N7704 prescribes 40 hours of specific training to be administered to assistant unit operators annually. AI-14 reflects this requirements. There were no TVA form 1453s found which indicate that such training has been accomplished.
- (8) AI-14 states the REP director training will be documented on form TVA 1453. All that could be found that even connected REP directors to such training was attendance forms which at best were very sketchy about what training was provided.
- (9) OSLI-8 requires that when EOI and AOI changes are posted that they be reviewed before assuming shift duties if the change affects immediate operator action requirements, or if the change does not affect immediate operator action within five working shifts. OSLI-8 provides a cover sheet for checking the category of the change as "affecting

immediate operator action" or "other" which dictates when the procedure change is to be reviewed. In reviewing the training documentation it was determined that in most cases the cover sheet was not checked at all. Many changes to EOIs and AOIs, most being of safety significance, involved changes to immediate operator actions. There were also cases found which were marked "other" which did involve a change to immediate operator actions. Documentation also revealed that the five working shift limit on EOI and AOI changes was often surpassed. In some cases months (and in one case 14 months) elapsed from the time of posting of the change until the change was reviewed. Note that OSLI-8 established requalification training required by 10CFR55, Appendix A, and receives no PORC review, QA concurrence, or superintendent approval.

- (10) OSLT-15 implements the requirements of DPM N78A13 in requiring that each candidate for an operator's or senior operators' license spend three months time as an extra man on shift for training purposes and that a summary of the three months activities be filed. No such summary was found in any licensee's file.
 - (11) AI-14, Plant Training Program states that general employee training (GET) must be scheduled such that each new employee at SQN can complete general employee training within a six month time limit. Records indicated that no licensed operator at SQN had completed all their general employee training. NOTE: NSRS questions whether it is prudent to allow six months to pass without GET course being presented, especially to key personnel involved in nuclear safety activities.
 - (12) The operator requalification training documentation forms which certified that the licensed operators had reviewed changes to AOIs and EOIs were stored in standard file cabinets in the operation section which did not meet the requirements of the OQAM, part III, section 4.1, paragraph 4.0.
- c. Watts Bar Nuclear Plant (WBN) [R-81-31-WBN-01]

The following are some examples of inadequate procedural control at the Watts Bar Nuclear Plant in the area of operator training.

- (1) Standard Practice WBN 12.7, "Plant Training Program," has as its purpose the establishing of requirements and responsibilities for implementing

the plant training, the only instruction given is referencing the OQAM, part III, section 6.1. As pointed out earlier in this section, the OQAM did not include the latest regulatory requirements so WB 12.7 does not adequately establish required training. Furthermore, WB 12.7, as is the case with all Watts Bar standard practices, is not reviewed by PORC and no evidence could be found to substantiate that the plant QA staff had reviewed the procedure. Since actions of reactor operators and senior reactor operators do affect CSSC items, this is considered a violation of DPM N71A1.

- (2) The Operations Section Letter-Training is a procedure approved and controlled by the Operations Section supervisor. This procedure contains most of the current regulatory requirements. This procedure is not reviewed by PORC, concurred with by the plant QA staff, nor approved by the Plant Superintendent as required by DPM N71A1.
- (3) Administrative Instruction AI-10.3, "Nuclear Plant Operator Training Programs Manual," Revision 0, was issued on November 10, 1981. The purpose for this procedure is stated as being "to distribute the Nuclear Generating Plant Operator Training Programs Manual (separate binder) which summarizes and consolidates training requirements for nuclear operating personnel from NSGPO to the shift engineer - SRO position." The manual being distributed is DPM N78A13 which implements current regulatory requirements. No instructions were given in AI-10.3 regarding implementation of DPM N78A13. The OSL-Training is referenced for WBN operations section personnel. As was pointed out earlier in this section, the OSL-Training is not reviewed and approved per the requirements of DPM N71A1. In effect, AI-10.3 adds nothing to the control of operator training by plant management.

In summary, the standard practice WB 12.7 referenced the OQAM which was not up to date, the OSL-Training contains most of the current requirements but had not received the proper review and approval, and AI-10.3 merely distributed DPM N78A13, which is not a self implementing DPM. Based on the above, control of operator training by plant management is considered inadequate. There must be established at the plant a procedure, reviewed by PORC, concurred with by plant QA, and approved by the superintendent, which includes all current regulatory requirements. Also, effort should be made to consolidate all operator training into one plant procedure in order to reduce the probability of inconsistency.

In addition to the above, several other problems with the existing program were found and are described in the following paragraphs.

- (4) The WBN OQAM designates the Assistant Superintendent (Operations) as responsible for operator requalification training. Section 7.2.2 of standard practice WB 12.7 designates the operations section supervisor.
- (5) DPM N75A8, "Plant Systems Familiarization Study Guide," establishes a program of study for fourth period NSGPO trainees and provides for updating of the material by the plant as the need arises. There was no means established to update the study guide and there was no indication that an update had been performed. The training program should include the requirements and method for performing this update.
- (6) 10CFR55, Appendix A, items 3b and c, requires that the requalification program shall include on-the-job training so that:
 - (a) Each licensed operator and senior operator has demonstrated satisfactory understanding of the operation of all apparatus and mechanisms and knows the operating procedures in each area for which he is licensed.
 - (b) Each licensed operator and senior operator is cognizant of facility design changes, procedure changes, and facility license changes.

Neither the established program for requalification training nor the FSAR have provided for a method of review of design changes, license changes, or procedure changes. Not having this requirement included in the requalification program is a violation of 10CFR55 and the FSAR should be revised prior to plant licensing.

- (7) 10CFR55, Appendix A, requires "the requalification program shall include preplanned lectures on a regular and continuous basis throughout the period in those areas where annual operator and senior operator written examinations indicate that emphasis in scope and depth of coverage is needed in the following areas:
 - (a) Theory and principles of operation
 - (b) General and specific plant operating characteristics

- (c) Plant instrumentation and control systems
- (d) Plant protection systems
- (e) Engineered safety systems
- (f) Normal, abnormal, and emergency operating procedures
- (g) Radiation control and safety
- (j) Technical specifications
- (.) Applicable portions of 10CFR

The requalification program described in the OSL-Training included all of the above categories in lectures but did not list items (h) and (i) as being subject to requalification examination.

- (8) DPM N78A13 requires that any licensee scoring less than 70 percent on any category or less than 80 percent overall on the annual requalification examination shall be removed from licensed duties, receive accelerated training, and retested prior to assuming licensed duties. The requalification program described in OSL-Training does not provide for removal of the licensee who scores below the standards from licensed duties.
- (9) The WBN OQAM specifies the Assistant Superintendent (Operations) as a members of the training review board. The OSL-Training, section 10.4, states that the assistant superintendent will be on the training review board but doesn't say which assistant.
- (10) DPM N78A13 is very specific in describing the types of reactivity changes that are required in requalification training. The OSL-Training, section 10.2.3, is confusing in what the requirements for reactivity change really are. This confusion should be resolved. Also, there needs to be a standard form for documentation of reactivity changes as well as performance evaluations of licensees.
- (11) DPM N78A13 states that a time limit shall be imposed for completion of the final written examinations for the cold license, hot license, and the annual requalification programs as follows:

Reactor Operator - 9 hours
Senior Reactor Operator - 7 hours

The OSL-Training indicates that a 5-8 hours requalification examination will be administered. This apparent inconsistency should be resolved in the procedure revision.

- (12) DPM N75A5, Nuclear Steam Generating Plant Operator (NSGPO) Training Program. (Same as that detailed in section V.3.a.(10) and V.3.d.(10).)

d. Power Operation Training Center (POTC) [R-81-31-POTC 01]

The following are some examples of the POTC staff failure to follow and/or implement procedures

- (1) DPM N78A13 had not been implemented into an approved POTC instruction resulting in a lack of instructional control by management in the area of licensed and nonlicensed training.
- (2) DPM N75A9 had not been implemented into an approved POTC instruction resulting in a lack of instructional control over simulator software and hardware design changes.
- (3) DPM N79A12 had not been implemented into an approved POTC instruction resulting in a lack of guidance in the area of program review and evaluation.
- (4) DPM N72A39 had not been implemented into an approved POTC instruction resulting in a lack of guidance on how operational experience is to be passed on to licensed instructors and supervisors.
- (5) DPM N77TC3 had not been implemented into an approved POTC instruction resulting in a lack of guidance in scheduling examinations with NRC.
- (6) DPM N77TC6 had not been implemented into an approved POTC instruction resulting in a lack of guidance in simulator training scheduling.
- (7) DPM N79A7 had not been implemented into an approved POTC instruction resulting in a lack of guidance in general employee training.

The subject of POTC implementing division procedures was discussed by NSRS with the division Central Office, Quality Assurance and Compliance Branch Chief. The NSRS was told that the POTC was to implement division procedures in the same manner as the plants as required by DPM N71A1 and OQAM.

It was the conclusion of the NSRS, after discussion with POTC personnel, that management at the

POTC was not aware of the requirement that they implement division procedures into POTC instructions. This is considered by NSRS to be a breakdown in quality control of a safety-related activity; and immediate action should be taken to ensure that POTC management understands their responsibilities in implementing division procedures and that those DPMs identified as applicable to division training and to POTC activities be implemented into approved POTC instructions.

- (8) Failure to implement Part III, Section 1.1 of the OQAM into a POTC procedure for document control.

Part III, section 1.1 of the OQAM is a procedure which provides the method which shall be used to control documents which affect critical structures, systems, and components (CSSC) of the nuclear plant.

Paragraph 2.2 of part III, section 1.1 of the OQAM states, in part, "Organizations with such document holdings (e.g., OQAM procedures, DPM procedures, standard practices, administrative instructions) shall prepare and maintain document control procedures which define the responsibilities for the preparation, review, approval, distribution, and revision of these documents.

The Code of Federal Regulations, Title 10, Part 50, Appendix B, Criterion V, states in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions."

Furthermore, Title 10, Part 50, Appendix B, Criterion VI, provides the following guidelines for document control. "Measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality. These measures shall assure that documents, including changes are reviewed for adequacy and approved for release by authorized personnel. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless the applicant designates another responsible organization."

There was not in place at the POTC an instruction which established a document control system.

It was the conclusion of NSRS that operator training, which is certainly an activity which affects nuclear safety was not being conducted by approved POTC instructions which were controlled by an established document control system.

Immediate action should be taken by the POTC staff to correct this deficiency in control of an activity affecting nuclear safety.

This constitutes a failure to implement the requirements of the OQAM and 10CFR50, Appendix B, and should be evaluated by the POTC for reportability to the NRC.

- (9) Failure to implement the OQAM, Part III, Section 6.1, "Selection and Training of Personnel for Nuclear Power Plants," into approved POTC instructions.

During this review the NSRS discussed the methodology to be used by the POTC to implement the requirements of the OQAM with NUC PR Central Office personnel. An NCO management representative stated, "The POTC is to implement these OQAM just like the nuclear plants do." The following guidelines are from paragraph 7.0 of the OQAM, part III, section 8.1, on implementation of the OQAM.

As various aspects of plant operation develop and progress, the Plant Superintendent shall be responsible for implementing the procedures in the OQAM that pertain to these activities. The Plant Superintendent shall implement the OQAM procedures for which he is responsible by one of the following methods:

- (a) A standard practice or administrative instruction in the form of a cover sheet with the OQAM procedure attached, or
- (b) A standard practice or administrative instruction which details and interprets the subject OQAM procedure, or
- (c) A standard practice which recognizes the OQAM as instructions to the plant supervisors.

It was the conclusion of NSRS that the POTC management did not understand that they were to have implemented the OQAM in any manner.

The OQAM, part III, section 6.1, paragraph 1.1, establishes the following scope of this procedure:

"This procedure provides criteria for the selection and training of personnel for TVA's stationary nuclear power plants. It addresses itself to the qualifications, responsibilities, and training of personnel in operating and support organizations appropriate for the safe and efficient operation of nuclear power plants. It is limited to personnel within the operating organization who have a direct relationship to technical aspects, operations, or maintenance of the plant.

The Nuclear Regulatory Commission (NRC) promulgates regulations applying to many aspects of the design, construction, and operation of nuclear power reactors. This procedure shall not take precedence over any NRC regulation. The Division of Nuclear Power is also committed to comply with the requirements of ANSI N18.1-1971, Selection and Training of Nuclear Power Plant Personnel. This procedure is intended to meet or exceed that standard."

This section of the OQAM along with DPMs are to provide NUC PR direction in the selection and training of nuclear plant personnel.

With these facts in mind, it was the conclusion of NSRS that this failure to implement the OQAM training procedure along with a failure to implement the DPMs constituted a failure in the QA program in the area of operator training. This is considered by NSRS to be a significant deficiency in the control of an activity affecting nuclear safety. It was further concluded that since the license training programs being presented at the POTC were not controlled by approved POTC instructions, that immediate action should be taken by the POTC staff to implement the OQAM, part III, section 6.1 and the DPM N78A13 and other DPMs as appropriate into approved POTC instructions to control training activities.

- (10) Failure to follow and/or revise division procedure N75A5. DPM N71A1 established methods and assigns responsibility for the preparation, review, approval, revision, and implementation of division procedure manual. The following statement appears in DPM N71A1, "Each responsible person in Management is responsible to the NUC PR director for seeing that procedures are carried out."

DPM N75A5 provides the daily lesson plans for the first three periods of the NSGPO training program and is one of the few self implementing division

procedures. Implementation requirements are considered to have been met when a class instructor has been verbally directed to use DPM N75A5.

The following statement appears in DPM N75A5, "The NUC PR training center coordinator shall be responsible for handling and recommending revisions of this procedure to the Chief, Nuclear Generating Branch.

In August of 1979 the Nuclear Accrediting Subcommittee approved an increase of the NSGPO program from 22 to 26 months with an increase in scope and content. An outline was developed by the POTC which was part of the approval by the accrediting subcommittee. A memorandum from the Assistant Director of NUC PR (Operation) to the POTC coordinator (L51 791001 812) dated October 16, 1979 requested that necessary personnel be dedicated to the task of revising the N75A5 daily lesson plans and that the POTC staff should draw on the plants to assign the necessary employees on a temporary per diem basis to accomplish the assignment. It was also stated that the student III, step 2, portion which was moved to the plants should be included in this preparation. Another memorandum from the Assistant Director of NUC PR (Operation) to the Training Branch chief (L51 791203 815) dated December 7, 1979 again mentioned preparation of the daily lesson plans and that the POTC staff should proceed with the program changes.

It was the conclusion of NSRS that there were not in place approved daily lesson plans for the NSGPO program being taught at the POTC or at the plants nor had there been an adequate effort made over the past two years to prepare the daily lesson plans and revise DPM N75A5. The OQAM, part III, section 1.1, paragraph 4.0, requires that activities that affect nuclear safety be prescribed in documented procedures and instructions and that the requirements of such procedures and instructions are mandatory and shall be complied with by responsible organizations and individuals.

The failure of the POTC to revise DPM N75A5 and ensure NSGPO training program implementation as required by the DPM is considered a breakdown in control of an activity affecting nuclear safety.

Immediate action should be taken to develop daily lesson plans and to be in compliance with division procedures as quickly as practicable.

e. Nuclear Central Office (NCO) [R-81-31-NCO-03]

(1) Division Procedure Implementation

In the details section of the Browns Ferry, the Sequoyah, the Watts Bar, and the POTC reviews are the many items which provide evidence of inconsistency in implementation and failure to follow the division procedures covering operator training.

In some cases there is no implementation, in some, partial implementation, in other improper implementation, such as by operation section instruction letter.

The following statement appears in DPM N71A1, "Each responsible person in management is responsible to the NUC PR Director for seeing that the procedures contained in this manual are carried out. At the plants, division procedures shall be implemented through approved plant instructions. When the division procedure affects CSSC items, the resulting plant instruction shall be reviewed by PORC, concurred with by the Plant QA staff, and approved by the Plant Superintendent."

Operator training activities can certainly affect CSSC items in that the correct operation of each system and their correct integrated operation depends on proper training of the plant licensed and nonlicensed operators.

It is the conclusion of the NSRS that this inconsistent implementation and failing to follow procedure is another indication of the training branch and QA staff's failing to function as managers in their respective duties to ensure consistency and quality assurance in operator training activities within the division.

In summary, based on the cases documented, an obvious need for periodic review of training programs and their implementation is needed. Since the Plant Superintendent is "responsible for the adequacy and completeness of the training and qualification of plant personnel" (Per TVA QA Topical Report TR75-1) and since the Nuclear Training Branch" is responsible for the development, implementation, and administration of division training activities (per TVA QA Topical Report TR75-1), it seems quite appropriate for the training branch to be responsible for periodic evaluation of training activities conducted at the

plant as well as the POTC and the Plant Superintendent assuring that such a review is performed. Results of this review should be reported to the Plant Superintendent, the Manger of Technical Support, and the Director of Nuclear Power. The frequency of the review should be no less than annually. This recommendation is consistent with the requirements of DPM N78A13 that "All NRC license-related training programs shall be submitted annually to the Chief, Nuclear Training Branch, for review and approval."

4. Inadequate Management Control of Operator Training Activities (R-81-31-BFN-02, R-81-31-SQN-02, R-81-31-WBN-02, R-81-31-POTC-02, R-81-31-NCO-04)

a. Inadequate Working Relationship Between Plants and Training Branch

The NSRS discussed with the training shift engineer at BFN the working relationship between the division training branch and the plant in respect to assistance and direction from the training branch in all areas of onsite operator training.

The only indicated interface was in respect to annual requalification training in that Shift Engineer Training would relate to the training branch the necessary content of requalification training from the past years experience and requalification examinations and to establish a schedule for attending simulator training at the training center. The plant Training Shift Engineer indicated that there had been very little interface and assistance in other areas of operator training. There has been no assistance in preparation for or presentation of the onsite NSGPO training program. This relationship is somewhat better between SQN, WBN, and the training branch but this is primarily because of their close proximity. The NSRS concluded that one possible reason for this lack of interface was the inadequate staff of the training branch. With the present organizational structure, NSRS believes that future plants, such as Bellefonte, Hartsville, Yellow Creek, and Phipps Bend will have the same problem.

The training branch is responsible for development, implementation, and administration of training activities (page 3, part I, section 2.1, OQAM, Rev 1/21/81), and therefore it is the NSRS' conclusion that an inadequate working relationship existed and that the Plant Superintendent and the training branch should take action to correct this problem in management control of division training activities.

b. Inadequate Scope of Plant Training Review Board Responsibilities

The plant training review board is composed of the Plant Superintendent, Assistant Plant Superintendent (Operations), Operation Section Supervisor, Operation Supervisor with designated training responsibility, and the Shift Engineer-Training.

The training review board's responsibility was limited to the review of training records of individuals who fail requalification training, recommending the scope and duration of accelerated training and approval after review of training and examination before a licensee many reassume the duties of the licensed position.

The NSRS found that the operator training activities were left almost entirely to the training shift engineer with little or no involvement by upper management. Due to the fact that many division level procedures (DPMs) on training had not been implemented, improperly implemented, or revisions not implemented, it is the opinion of NSRS that this, along with many other indicators, is indicative of the need to expand the responsibilities of the training review board. Operator training and retraining is an activity in the area of nuclear safety that must not be neglected.

The responsibilities of this review board should be broadened to include all operator training and meet at some scheduled frequency for review and evaluation of programs, adequacy and methods of implementation, adequacy of training staff, etc.

c. Failure to Provide Guidance in Selection and Certification of Plant Instructors

Selection and certification of plant and training facility instructors was one of the items of concern addressed in H. R. Denton's letter, enclosure 1, section D.2.b, which states, "Eligibility requirements shall be developed for instructors" in addition to their holding an SRO license and being enrolled in an appropriate requalification program.

TVA responded to the letter in November 1980 to the effect that "TVA has developed an instructor certification program at the Power Operation Training Center which is fully documented."

It was determined that such a certification program was in place at the Power Operation Training Center; however, the plant training staffs did not have an instructor

that had been enrolled in a program of certification nor had a schedule been established to certify any plant instructors. The fact that this is an NRC commitment that we have failed to meet makes it even more significant. There is no method of selection established except that he be an SRO.

Furthermore, it is to the best interest of TVA that the quality of instruction to licensees and license candidates be uncompromised.

Based on the above observations, it is concluded that plant instructions should be revised for the certification and selection of instructors and schedules should be established to certify instructors of license training as soon as practicable and that this deficiency be evaluated for reportability to NRC.

d. Failure of NUC PR Training Branch to Function in All Areas of Responsibility

TVA Topical Report (TVA-TR75-1, R4), paragraph 17.2.1.1.9 and the OQAM, part I, section 2.1 paragraph 1.3.7 both stated, "The Nuclear Training Branch is responsible for the development, implementation, and administration of division training activities. The branch is responsible for interpretation of TVA and outside regulatory agency requirements pertaining to training and for ensuring that division training programs are in compliance with these requirements.

The branch is also responsible for the preparation and updating of operational QA procedures, division procedures, technical specifications, and review of safety analysis reports in the area of training."

There are numerous instances where there has been a failure by the Training Branch to administer the division training activities. The other parts of this section and the other sections of this report indicate management control problems at the POTC and all the plants which are indicative of a failure of the Training Branch to meet many of its duties and responsibilities.

It was the conclusion of the NSRS that the Training Branch staff (which is also the POTC management staff) had not demonstrated the ability to divorce itself from the day-to-day duties of administration of the POTC to efficiently function at a branch level to administer all of the nuclear division training activities.

It was also questionable whether an adequate organizational structure in the Training Branch exists which

can carry out the responsibilities of the division training as outlined in the Topical Report (TVA-TR75-1, R4) and the OQAM.

The POTC staff provided NSRS with training schedules and projected instructor needs for 1982 operator training programs. This projected schedule shows a need for an additional six SROs to serve as PWR simulator and NSGPO instructors. This appeared to provide adequate staffing for POTC instructional activities, but NSRS did not see any evidence of increased staffing at the branch level or change in management priorities to correct the many problems existing at the branch level. One of the identified managerial problems at the branch level is the need of revision and update of the OQAMs, DPM, and plant FSARs to provide accurate, consistent, and fully adequate division direction for all the plants and the POTC to follow in operator training activities. Another is controlling training activities at each plant within the division. A third is providing adequate review and evaluation of division training activities to ensure quality in programs and their implementation and to ensure that conditions adverse to quality are identified and promptly corrected. A fourth is ensuring proper selection and certification of all instructors involved in license training.

The NSRS concluded from discussions with the training branch chief that they (the POTC staff) are doing well just to carry on their training activities at the POTC without the additional burden of the assigned branch responsibilities in the aforementioned areas.

It was also concluded by the NSRS and the expressed opinion of the POTC staff that there was an inadequate staff in the training branch to handle the many administrative tasks necessary to accomplish their assigned responsibilities. Other required tasks at the POTC were assigned higher priority which prevented the attention needed at the branch level in these other areas.

One area observed by the NSRS where better management control might provide some relief was that of administration of NSGPO oral examination. Based on figures provided by the POTC, during 1981 the POTC operator training (NSGPO and simulator) instructors worked a total of 5,257 hours overtime. The NSGPO instructors worked an average of 392 hours and the simulator instructors 280 hours. This is an average of about one extra day a week.

A major portion of this overtime was spent administering NSGPO examinations. The present schedule of NSGPO classes for 1982 indicates that approximately 400 oral examinations will have to be given during the year, each taking about four hours. The POTC staff must provide two examiners per examination. This would amount to $(400 \times 4 \times 2 =) 3,200$ manhours to administer this part of the program. These examinations are almost always administered in the evenings on overtime.

It was the conclusion of NSRS that with a minimum staff and with their time at a premium that this was inappropriate and that it would be prudent to look at other alternatives for administering these examinations and that the instructors' efforts be directed more toward preparation and revision of lesson plans, preparation for classroom presentation, student counseling, training aid development, etc. With the exception of the student III, step 1, which is Reactor Technology, all other NSGPO student oral examinations at the POTC are on the secondary plant or electrical training. There are fossil operators who could assist in administering these examinations and possibly this should be investigated.

With the present training branch organizational structure which is to provide the management direction for all NUC PR training activities, it appeared to NSRS that it would be nearly impossible for the Training Branch to have onsite (at each plant) training responsibilities when they have no control over these activities, and that it would be very difficult for the POTC staff to function at the branch level and resolve all of the division-level procedural and administrative problems and at the same time keep up with the day-to-day activities of managing the various training programs at the POTC.

It was the conclusion of NSRS that the many items of concern listed are indicative of a failure by management in quality assurance/control of an activity affecting nuclear safety (operator training) and should not continue.

Action should be taken by NUC PR to review the Training Branch, POTC, and plants assigned responsibilities in reference to available manpower and adjustments made so that responsibilities can be met and the many identified problems resolved in a timely manner.

e. Inadequate Review and Evaluation of Operator Training

The division procedures nor the plant instructions provided a method of review and evaluation of operator training.

The DPM N78A13 nor the OQAM establishes a method of review or a board for review at the division level of the NUC PR training activities. The plant's technical specifications reference a review by PORC and by NSRB. The OPQA&A staff also performs some review of requalification training. The many management problems described in this report indicates a need for broader responsibilities at each plant for the training review board and that a division-level training review board would be appropriate. This board could be made up possibly of the Chief, Training Branch, or his representative, POTC section supervisors as appropriate, the Assistant Plant Superintendent at each plant responsible for training, and a representative from the division personnel office.

Part 10, Chapter 50, Appendix B, Criterion II of the Code of Federal Regulations states, "The (QA) program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained." Criterion XVI of Appendix B states in part that "measures shall be established to assure conditions adverse to quality are promptly identified and corrected." It is the conclusion of NSRS that there is not a method established to assure that adverse conditions are promptly identified and corrected in operator training.

In September 1980 five BFN operators took the NRC Reactor Operator (RO) examination and five took the Senior Reactor Operator (SRO) examination. The examination results were poor in that all ten failed. An appeal by TVA resulted in only a slight improvement in that one SRO candidate was licensed. A review and regrading of this examination was conducted by the plant and training branch. The RO examinations regrade still resulted in most candidates failing the "A," "F," and "G" sections. Only one SRO examination was regraded and he passed. The greatest problem area for the SRO candidates were examination sections "J," "K," and "M." Sections "I" and "N" also proved difficult.

In discussing the hot license program with an operator who had completed the program but failed the NRC examination, he indicated that the extent of on site training was primarily going over old NRC examinations and that no hot license program outline was followed. In May of 1981, six of these candidates were reexamined and passed the NRC examination. These included four ROs and two SROs.

In October 1981 BFN put up eight more candidates--four ROs and four SROs. All four ROs failed and two of the

SROs failed. One of the SROs who passed was a repeat of the September 1980 group. Of the 24 candidates from BFN taking the NRC examination in the past two years, 55 percent have failed.

There have also been problems of several SQN operators failing the NRC examinations but these will not be detailed here.

It was noted by NSRS that the content of the BFN Hot License Program week nine on Radiation Control and Safety did not contain a review of theory or a review of exposure and shielding problems. Most BFN candidates in the first group failed this section of the NRC exam.

In October 1979 DPM N79A12 was issued to establish a review of all training required by division procedures. This, of course, should include all operator training. The DPM, however, in the opinion of NSRS was deficient in that a frequency was not established, nor did it state that review would be initiated because of an indicated need, such as examination, failure or operational error, nor were the results of this review considered a quality assurance record.

The only evidence of review as a result of this DPM was one of the NSGPO training completed by the Nuclear Operation Staff in January 1980.

At the time of review by NSRS, DPM N79A12 was also found to be ineffective in that the reorganization of NUC PR eliminated the position of Assistant Director of Nuclear Power (Operations) and the Nuclear Operation Staff, which was to have performed the review. NSRS could not find a reassignment of these responsibilities and the N79A12 DPM had not been cancelled. The NSRS concluded that the division operator training activities were in need of review and evaluation, that a method of review and evaluation should be established, and responsibilities should be assigned to carry out this task.

The NSRS could find no approved instruction at the corporate level or at the plant outlining a method of review and evaluation of program content or presentation when examination results indicated a need. There was no evidence found of any change in the hot license program following the initial failures to prevent a recurrence of examination failure.

f. Inadequate Quality Assurance Review

The TVA Topical Report TR-75-1 and the OQAM, part I, section 2.1, describe the responsibilities of the NUC PR QA Staff which include:

- (1) Developing and administering a comprehensive quality assurance program for the division's activities.
- (2) Providing staff assistance to branch chiefs within the division and to the nuclear plant staffs.
- (3) Implementation of a materials quality program, a compliance systems program, and a nondestructive test and surveillance program.
- (4) The Chief, Quality Assurance Staff, shall annually review the status and adequacy of the operational quality assurance program and shall report the results of these reviews to the Director of NUC PR and the Quality Assurance Manager.
- (5) To assure that the NUC PR quality assurance program for operation and maintenance of TVA's nuclear plants fulfills the NRC and the Office of Power requirements for quality assurance.
- (6) Reviews and concurs with plant standard practices which implement the requirements of the OQAM.

The Quality Programs Section is responsible for:

- (1) Developing programs and procedures for implementing quality assurance program requirements established by the Office of Power;
- (2) Monitoring Office of Power audit findings, NRC inspection findings, and corrective action reports to identify trends and problems indicative of QA program weaknesses:
- (3) Providing QA engineering support to central office and plant staffs during peak work load periods or for performance of special projects or studies.

The Quality Control Section is responsible for performing division-level quality control activities required by the Division of Nuclear Power quality assurance program and procedures pertaining to (1) quality control inspection, (2) material quality control, and (3) vendor evaluation.

The NSRS met with the Division of Nuclear Power Quality Assurance and Compliance Branch chief and the Quality Engineering and Compliance Group supervisor in respect to the role the division QA Staff has within the division. A discussion was also held concerning how the POTC should implement division procedures and whether operator

training was part of the QA program. During this discussion, NSRS was informed that the division QA and Compliance Branch did not perform any type of audit work. They do sign off on DPMs but do not look at implementation. They did think that operator training was part of the QA program and should be controlled accordingly.

The NSRS looked also at the responsibilities of the plant QA staff which organizationally is in the QA&C Branch and answers to the division Quality Assurance and Compliance Branch chief through the Field Quality Assurance Staff supervisor.

The OQAM, part I, section 2.1, outlines the following as some of the responsibilities of the plant quality assurance staff.

The plant quality assurance staff is responsible for assisting the plant manager in (1) developing, planning, initiating, and directing a comprehensive nuclear plant quality assurance/ quality control program which implements the Division of Nuclear Power Quality Assurance Program as detailed in the procedures of the plant Operational Quality Assurance Manual. (Plant personnel selection and training is part III, section 6.1 of the OQAM.)

The plant quality assurance staff (2) performs quality assurance functions relative to plant operations and (3) provides quality control inspections and verification of those activities, (4) they evaluate the effectiveness of the program and make recommendations to the plant manager regarding its implementation, (5) they verify that operational instructions contain applicable quality assurance requirements and that employees are following the approved instructions, (6) the plant quality assurance staff reviews and recommends approval of plant instructions concerning the CSSC (such as maintenance, modification, and repair procedures and instructions; drawings; specifications; and changes thereto), and (7) shall sign off prior to their use attesting to the fact that the format and content are in compliance with quality assurance requirements for the plant.

The plant QA staff is responsible for assisting the Plant Superintendent in developing, planning, initiating, and directing a comprehensive plant quality assurance program which implements the OQAM. Part III, section 6.1 of the OQAM is the guidance provided the plant in the selection and training for nuclear plant personnel. There is no evidence that they (plant QA staff) have taken an active roll as required by the OQAM in the area of operator training.

It was the conclusion of the NSRS that the division nor plant QA staffs were meeting the intent of the topical as implemented in the OQAM.

It is the opinion of the NSRS that the division and plant QA staff should review/audit the division and plant activities affecting nuclear safety (in this case operator training) by looking at the procedures and instructions controlling these activities and their implementation and thereby provide the line managers the assistance they need to assure compliance. One of the major causes of items of noncompliance when cited by NRC is "failure to follow procedure."

Another is "failure to implement procedures." We are not proposing that the NSRS considers the NUC PR QA staff as having the authority and organizational freedom with sufficient independence to perform the quality assurance audit function and realize the Office of Power Quality Assurance Staff functions as this independent QA audit group. However, to minimize their (OPQA) findings, findings by NSRS, and findings by the NRC, the division and plant quality assurance staffs should function as an internal review group to work with the branches and with the various plant staffs to assure programmatic and instruction adequacy, their proper implementation, and help to assure that conditions adverse to quality are promptly identified and corrected. The day-to-day work load of line managers at a nuclear power plant is excessive. The onsite quality assurance staff should function to make each section supervisor's job easier.

Another area of responsibility NSRS considers lacking adequate QA attention is that of assuring that all quality assurance-related DPMs are listed on attachment 2 of part III, section 1.1 of the OQAM. There are several DPMs in the area of operator training, the major one being N78A13, that were not listed on attachment 2. This is considered by NSRS as a failure in the quality assurance program in that the DPMs are not receiving adequate review as established in the OQAM.

It was also observed by NSRS that several division procedures were incorrect and in conflict resulting from division reorganization which had eliminated the position of Assistant Director (Operation) and the Nuclear Operation Section had been dissolved. Division procedures had not been revised to reassign their responsibilities or reflect changes in DPM N78A13 rendering the DPM's inaccurate and ineffective and providing contradictory management direction. The division QA staff should function to assist the NCO, branches, and

the plants in promptly identifying problems such as these and by making timely revision to the affected DPMs.

In a memorandum from the Manager, Technical Support, to the Director of Nuclear Power (L16 811027 871) dated November 9, 1981, the following statements appear.

"Section 17.2.1 of the TVA Topical Report for Quality Assurance (TVA-TR75-1) requires in part that the NUC PR Chief, QA Staff shall " . . . annually review the status and adequacy of the operational quality assurance program and shall report the results of these reviews to the Director of the Division of Nuclear Power and the Quality Assurance Manager. . . ."

"The NUC PR Quality Assurance and Compliance Branch does not perform an independent review and audit function. Consequently, its ability to obtain a comprehensive independent assessment of the adequacy and effectiveness of QA program implementation is very limited. NUC PR management must rely on the documented results of NRC inspections, QA&AS audits, NSRS audits, and other periodic reviews and investigations of NUC PR's quality assurance program to provide an insight into adequacy and effectiveness of QA program implementation."

The QA and Compliance Branch recognizes that they are not functioning as required by the TVA topical report. It is the conclusion of NSRS that NUC PR will continue to suffer recurring problems of quality assurance with resulting items of noncompliance unless the division QA staff is directed to function as an internal review group.

5. Operator Training Program Inadequacies (R-81-31-BFN-03, R-81-31-SQN-03, R-81-31-WBN-03, R-81-31-POTC-03, R-81-31-NCO-05

a. Requalification Training Program Classroom Presentation and Time Allotment for Training

The NSRS discussed with the training shift engineers and with many licensed ROs and SROs at all facilities visited the adequacy of the requalification training in reference to new NRC examining criteria. The unanimous opinion of the people contacted was that no one would pass an NRC administered requalification examination unless annual requalification training is changed. According to NRC's proposed new criteria, the annual requalification examination is to consist of a written examination, an oral examination, and an operating test

on the simulator. All the licensees appeared to be very concerned over the new criteria and NRC administering the annual examination.

The requalification program is to ensure that competent reactor operators and senior reactor operators are at the controls and supervising the operation of TVA's nuclear power plants at all times. TVA's goal in requalification training should be to enhance plant safety and reliability by maintaining a high level of skill and knowledge in the licensed reactor and senior reactor operators.

By necessity, the requalification training must be a very disciplined, well organized program sufficient broad in scope but flexible enough to cover recent changes. The program must also provide the necessary operating experience feedback to licensed personnel. This type of program would enhance nuclear safety in TVA.

Each year NUC PR provides three weeks of requalification training for each person holding an NRC license. The first two weeks of requalification training is given early in the year at the POTC, usually starting in January and all five groups finishing somewhere between mid-April to mid-June. The onsite requalification training classroom presentation is scheduled for one week (40 hours) in the fall of the year; and during this week, on the final day the annual requalification examination is given.

To cover all the material scheduled and to provide time for any type of review to prepare for the annual written examination, requires very disciplined use of the 32 to 40 hours available during the week of training. (SQN and WBN trained five full days and administered requalification examination on Saturday in 1981.)

It was the conclusion of the NSRS from discussion with licensed operators and observation of BFN and SQN requalification classroom activities, that time could be better utilized and that better prepared daily lesson plans by the instructors would improve the lectures presented. It was further concluded that a review and evaluation of the organizational structure of the plant operator training staff (a one-man staff) should be conducted and that a thorough review and evaluation of the time allotted for personnel requalification program, in light of the new NRC criteria, should be immediately initiated and such alternatives

as a six group rotation and an ongoing, onshift requalification program be considered. Several failures of an NRC administered requalification examination could be devastating to plant personnel morale and could possibly reduce the number of licensed personnel to a point of affecting unit availability.

b. Inadequate Scope and Content of the Browns Ferry Standard Practice on Training, BFA 75

The Browns Ferry standard practice BFA 75 was the approved plant instruction controlling operator training. This standard practice was developed in 1976 and was last revised on August 28, 1978. The purpose of this standard practice was to outline the experience and training to provide qualified personnel for operating positions at BFN. Duties and responsibilities are established to administer the different programs for operator training. Program outlines, minimum licensing requirements, program descriptions, and documentation of records and reports are also included as part of the standard practice.

In reviewing the content of this standard practice (BFA 75) the NSRS concluded that it was deficient in the following areas:

- (1) The appropriate assistant superintendent had not been identified as having responsibility for training. The OQAM specified the Assistant Superintendent (Operations). On page 4 of standard practice 4.4 the Operation Supervisor is assigned the responsibilities of coordinating operator training and maintaining records of training and lesson plans. BFA 75 should be clarified to reflect division requirements in assigning responsibility.
- (2) The selection of student class instructors as specified in BFA 75 was being violated. Schedule D, grade 7 (unit operators), instead of grade 8 (assistant shift engineers, now M-3s) were being used as NSGPO instructors at BFN.
- (3) The "training plan for operators" is referenced several times. Training of students in the nuclear division is primarily controlled by DPMs N75A5, N78A13, and N75A8. The "training plan for operators" is an uncontrolled document. A description of the NSGPO training contained in the training plan for operators should be included in the DPM N78A13 and implemented into BFA 75.

- (4) The hot license program (RO and SRO) described did not include thermal hydraulics, fluid flow and heat transfer, the required simulator training, or the required 12 weeks on shift as an extra operator.
- (5) The licensee program did not include the accurate experience requirements for RO or SRO license applicants presently required by NRC.
- (6) Guidelines provided to administer the different operator training programs were inadequate.
- (7) Guidelines provided in the area of qualification of instructors presenting license training were inadequate.
- (8) Third period and fourth period NSGPO training records were not maintained onsite. This training would be a portion of license training requirements submitted in resumes for license applications.
- (9) The provisional status report as described in BFA 75 no longer exists in NRC PR.
- (10) The hot license training documentation did not meet the requirements of DPM 78A13.
- (11) The lecture series to be conducted in requalification training did not include (1) principles of heat transfer and fluid mechanics, (2) theory of fluids and thermodynamics, or (3) mitigation of accidents involving a degraded core as required by H. R. Denton's letter and as implemented in DPM 78A13.
- (12) The requalification training outline did not mention an "emphasis being placed on reactor and plant transients" as required by H. R. Denton's letter and as implemented in DPM 78A13.
- (13) The requalification program control manipulation did not meet the requirements of H. R. Denton's letter as implemented in DPM 78A13.
- (14) Requalification training evaluation did not meet the requirements established by NRC in H. R. Denton's letter and implemented in TVA's DPM 78A13.
- (15) The requalification program documentation did not meet the requirements of part III, section 6.1 of the OQAM.

c. Inadequate Documentation of Training at Browns Ferry

The NSRS asked for selected licensed operators records in order to review documentation of training. The in-file records of training done at the Training Center was very easy to retrieve and review. Much difficulty, however, was encountered in trying to retrieve and review onsite training records. Part of this could be attributed to the fact that a new Shift Engineer (SE)-Training had recently moved into that position, but the major cause appeared to be the method, which was often inappropriate use of attendance sheets. The use of form BF45 for all training documentation is required by standard practice BF 4.4 but was not being adhered to by the Shift Engineer-Training. The NSRS could not determine in a timely manner in several cases that licensed individuals had received all required training.

Quality assurance records which furnish documentary evidence of the activity affecting nuclear safety are valid only if stamped, initialed, signed, or otherwise authenticated and dated by authorized personnel. (Per OQAM, part III, section 4.1, definition No. 1.) Some attendance records did not meet this criteria nor could NSRS tell at times what had been presented to those on the attendance sheet.

The OQAM, part III, section 4.1, paragraph 2.2, states that a person shall be designated as responsible for serving as custodian of QA records when in temporary or active storage. The BFA 75 standard practice does not assign this responsibility. OQAM, part III, section 4.1, paragraph 3.1.3, states, "Incoming records shall be promptly filed in temporary storage areas in accordance with written instructions which describe the filing system. This system shall provide for retrieval without undue delay." In talking with the Training Shift Engineer, the NSRS concluded that the BFN plant document control supervisor had not provided any assistance and that he (the SE-training) was not aware of there being an "Information Management Manual" as described in standard practice BF 2.10.

The OQAM, part III, section 4.1, paragraph 3.1.4, also requires that the records custodian for each temporary records storage area shall maintain an index of records stored in that area. In paragraph 3.1.5 it is further required that a check out system shall be maintained so that accountability for records borrowed from storage is maintained. The NSRS could not find any evidence that these requirements were being implemented for the operator training records storage.

It was the conclusion of the NSRS that operators training records storage was not adequate to provide timely retrieval nor had adequate records forms been developed.

Immediate action should be taken by the plant staff to develop documentation forms which are referenced by different training programs and which, if completed, would meet all documentation requirements and, further that the records storage system be set up as specified in the OQAM, part III, section 4.1, for temporary or active records storage.

d. Inadequacy of Training Staff

(1) At the Plants

There has been only one permanently assigned operator training instructor at the plants since first establishing the position identified as Shift Engineer (SE) Training in about 1973. The plant standard practices establish the responsibilities of this position, which are numerous. Other instructors are pulled off shift to assist the SE-Training on an as-needed basis. The SE-Training had also been called on to perform many other duties outside the area of training as the need arises. One specific responsibility assigned the SE-Training which is outside the area of training is to "review and revise operating instructions to ensure that they are current."

At BFN the lack of well prepared lesson plans for hot license and requalification training, a poor documentation and record retrieval system, a lack of noise and traffic control in the training facility, poor housekeeping, a minimum number of training aides, and the instructors being called from class for other administrative duties were all indicative of possible staff and facility inadequacies.

Having only one permanent Operator Training Coordinator (Training Shift Engineer) with no permanent help appeared to create problems when he was not available. The one-man training staff does not appear to provide the continuity of expertise and ongoing effort required to have a quality operator training program.

The NSRS concluded that there was not ample time and/or manpower for the training shift engineer to develop training aides, the detailed lesson plans needed for license training, and many other tasks

required for a quality training program. Plant management should immediately review and evaluate their operator training organization to determine what an adequate staff would be and eliminate use of training personnel in other areas except in an emergency situation.

(2) At the POTC

The operator training schedule at the POTC is very heavy with what appears to be an inadequate number of instructors in the NSGPO and the PWR simulator areas to accomplish the task in an effective manner. There was in session seven NSGPO classes and there are seven NSGPO instructors on staff. Of these seven instructors, one is limited to teaching only the electrical portion of the program. Each year each instructor must take an average of four weeks annual leave and all but the electrical instructors must spend a minimum of three weeks in requalification training. There is also required every three years a refresher on fire fighting. On an annual basis each instructor will be available to instruct a class about 43 weeks a year. The first 10 weeks of each class is taught by Chattanooga State and the class starts are staggered so that it all comes down to having one instructor per class available full time. Classroom lecture time varies anywhere from four to eight hours each day. When not in the classroom, the instructors take the classes to Sequoyah for inplant training on equipment and systems. The instructors must prepare for each days classroom lecture presentation; prepare, administer, and grade a weekly quiz; handle timekeeping; student personnel problems; tutor; etc. The instructors time for preparation and all the other tasks required to handle a class amounts to more than what can be accomplished in an eight hour day. Either the instructor must work overtime to accomplish all that needs to be done or some area of training ends up being neglected.

A very similar situation exists on the PWR simulator and is even more critical in that once a class starts into a license certification program, the instructors are with them eight hours every day.

The POTC staff provided the NSRS with their 1982 schedule which indicated a need for an additional six SRO instructors to effectively administer the operator training program scheduled.

During the time the NSRS was at the POTC it was observed that instructors were sometimes called away from their classes, both in the classroom and on the simulators, to take care of some other administrative duty or lecture time was sacrificed for preparation time or time to grade papers. It was also observed that overtime was required for the instructors to maintain the pace. Over 5,000 hours overtime was worked in 1981 by the NSGPO and simulator instructors.

It was the conclusion of NSRS that there was an inadequate number of NSGPO and PWR simulator instructors to effectively administer the programs scheduled without adversely affecting the quality of these program and that additional qualified SRO instructors should be obtained to prevent an adverse effect on the quality of a program affecting nuclear safety.

e. Inadequacies of Training Facilities

During the time the NSRS was at BFN the trailer complex used for training was crowded and noisy with very little control of traffic through the facility. Most of the classrooms, offices, and the hallway appeared to be cluttered because of overcrowding, excessive material, equipment, and possibly a need for a little better housekeeping. The classrooms used for requalification and NSGPO training were very small and overcrowded with a considerable amount of distraction from noise and traffic in the hallway.

With limited time for the onsite requalification training necessary to maintain the licensed operator proficiency, the presentation and facilities should be at a level not to compromise the training process which could have an impact on nuclear safety.

It was concluded by the NSRS that the Browns Ferry training facilities were less than adequate and need improvements.

6. Failure to Meet Commitments to NRC and Noncompliances with 10CFR55 (Appendix A) and 10CFR50 (Appendix B) (R-81-31-BFN-04, R-81-31-SQN-04, R-81-31-WBN-04, R-81-31-POTC-04, R-81-31-NCO-06, R-81-31-OPQA-01)

a. Failure to Certify Instructors at All Plants and at POTC

H. R. Denton's March 28, 1980 letter to TVA on operator training, enclosure 1, paragraph D.2.b, states, "Eligibility requirements shall be developed for instructors"

In TVA's November 10, 1980 response it was stated that an instructor certification program had been established at the Power Operations Training Center and were fully documented.

It was determined that such a certification program was in place at the POTC issued as a training branch document and further implemented into a POTC standard practice. There was no division-level control of this program. NSRS found by record review and discussion with plant and POTC staff members that none of the instructors at BFN, SQN, WBN, or the POTC had been certified. It was determined that instructor certification was in progress at the POTC but nothing had been scheduled for plant instructors. It seems reasonable to expect that at least some instructors would have been certified one year after the commitment was made, but that was not the case.

This item was significant in that it involved an NRC commitment. Furthermore, it would be in the best interest of TVA for the quality of instruction to licensees and prospective licensees be uncompromised.

It was concluded by NSRS that the certification program, since it is a program controlling training for instructors at the plant as well as the POTC, that it should become a portion of the operator training procedure DPM N78A13, or another division procedure, which would ensure proper implementation and document control. It was further concluded that a schedule should be established for instructor certification on an expedited basis and that certification should be completed as soon as practicable.

b. Noncompliance with 10CFR55, Appendix A at Sequoyah Nuclear Plant (R-81-31-SQN-04)

10CFR55, Appendix A, sections 3b and 3c states, "The requalification program shall include on-the-job training so that. . .

Each licensed operator and senior operator has demonstrated satisfactory understanding of the operations of all apparatus and mechanisms and knows the operating procedures in each area for which he is licensed.

Each licensed operator and senior operator is cognizant of facility design changes, procedure changes, and facility license changes."

Furthermore, the SQN FSAR, section 13,2.6.5, requires that: "The shift engineer shall be supplied periodically with facility design changes, procedure changes, and facility license changes. Each licensee on shift shall be required to read and initial a signoff sheet attached to the change document. This sheet shall be placed in the plant files." Operations Section Letter-Training (OSTL) No. 11 includes these requirements but it had not received appropriate approvals. There was also no method established for licensee review of new procedures when they are initially issued.

There was no documentation found nor assertion made that facility design changes or procedure changes (except for EOIs and AOIs) were being reviewed by licensed individuals. This is in direct noncompliance with 10CFR55 as well as the FSAR and plant procedure OSTL-11.

This item is significant to nuclear safety in that operations personnel cannot be expected to operate the plant safely if they are not cognizant of changes to plant systems or components, changes to instructions for operation of safety systems, and revisions to regulatory restrictions in plant operation contained in license amendments.

Based on the above observations, NSRS concluded that action should be taken by plant management to ensure compliance with 10CFR55, Appendix A, sections 3b and 3c and NRC reportability requirements should be considered.

c. Noncompliance with 10CFR50, Appendix B at the POTC
(R-81-31-POTC-04)

The subject of POTC implementing division procedures and the OQAM was discussed by NSRS with the division Central Office, Quality Assurance and Compliance Branch Chief. The NSRS was told that the POTC was to implement division procedures and the OQAM in the same manner as the plants as required by DPM N71A1 and OQAM.

It was the conclusion of the NSRS, after discussion with POTC personnel, that management at the POTC was not aware of the requirement that they implement division procedures or the OQAM into POTC instructions.

There was failure to implement part III, section 1.1 of the OQAM into a POTC instruction for document control.

Part III, section 1.1 of the OQAM provides the method which shall be used to control documents which affect critical structures, systems, and components (CSSC) of the nuclear plant.

Paragraph 2.2 of part III, section 1.1 of the OQAM states, in part, "Organizations with such document holdings (e.g., OQAM procedures, DPM procedures, standard practices, administrative instructions) shall prepare and maintain document control procedures which define the responsibilities for the preparation, review, approval, distribution, and revision of these documents."

Paragraph 4.0 of part III, section 1.1 of the OQAM states, "Activities which may affect nuclear safety shall be prescribed in documented procedures and instructions. The requirements of such procedures and instructions are mandatory and shall be complied with by responsible organizations and individuals."

The Code of Federal Regulations, Title 10, Part 50, Appendix B, Criterion V, states in part, "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." The POTC has not complied with this requirement.

Furthermore, Title 10, Part 50, Appendix B, Criterion VI, provides the following guidelines for document control. "Measures shall be established to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality. These measures shall assure that documents, including changes are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless the applicant designates another responsible organization."

There was not in place at the POTC an instruction which established a document control system which resulted in noncompliance with Criterion VI of 10CFR50, Appendix B.

There was a failure to implement part III, section 7.2 of the OQAM into a POTC instruction to assure conditions adverse to quality in training are identified.

Criterion II of 10CFR50, Appendix B, states, "The (QA) program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved (initial training) and maintained (requalification training). Criterion XVI of Appendix B states in part that ". . . measures shall be established to assure conditions adverse to quality are promptly identified

and corrected." It is the conclusion of NSRS that there is no method established to assure that adverse conditions are promptly identified and controlled in operator training at the plants, at the POTC, or at the training branch level. The results in noncompliance with Criterion XVI of 10CFR50, Appendix B.

These items are considered by NSRS to be a breakdown in control of a safety-related activity; and immediate action should be taken by the POTC management to ensure that POTC staff understands their responsibilities in implementing division procedures and that those DPMs identified as applicable to division training and to POTC activities be implemented into approved POTC instructions. Implementation of the identified items will help ensure compliance with 10CFR50, Appendix B.

This item should be evaluated for reportability to NRC.

d. Noncompliance with 10CFR50, Appendix F by the Office of Power Quality Assurance Staff (OPQA) [-81-31-OPQA 01]

The NSRS met with the OPQA staff to discuss their program of auditing the NUC PR operator training program. It was their position that all operator license training did not require QA audit. The extent of the OPQA audit has been the requalification program at the plant and at the POTC. The 10CFR50, Appendix B, Criterion II, contains the following statements, "The program (QA) shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained." Criterion XVIII states that a comprehensive system of planned and periodic audits shall be carried out to verify compliance with all aspects of the quality assurance program. The audits shall be performed in accordance with written procedures or check lists by appropriately trained personnel not having direct responsibility in the areas being audited.

Requirements of Appendix B to 10CFR50 have been implemented by POWER through the OPQA program for nuclear plant operations as described in sections 17.0 and 17.2 of the TVA QA Topical Report TVA-TR75-0A, Revision 4.

The NSRS could find no evidence of a procedure or check list for auditing of the operator training program with the exception of requalification training.

The numerous findings in this report are indicative of a program affecting nuclear safety which does not have quality control. It is the conclusions of the NSRS that an adequate QA audit program in the area of operator training did not exist. This item should be evaluated for reportability to NRC.

VI.. LIST OF PERSONNEL CONTACTED

A. Browns Ferry Nuclear Plant

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
J. D. Glover	NUC PR/Shift Engineer	X	X	X
E. G. Thornton	NUC PR/Shift Engineer-Training	X	X	X
R. Hunkapiller	NUC PR/Operations Section Supervisor		X	
J. B. Studdard	NUC PR Superintendent's Office/Special Proj		X	
R. G. Jones	NUC PR/Shift Engineer		X	
F. Walker	NUC PR/NSGPO Instructor		X	
R. Smallwood	NUC PR/Shift Engineer		X	
J. Price	NUC PR/Training Officer		X	
D. Charles	NUC PR/Unit Operator		X	
D. South	NUC PR/Assistant Shift Engineer		X	
H. Hatton	NUC PR/Shift Engineer		X	
T. Chinn	NUC PR Compliance Section Supervisor		X	X
J. Bynum	NUC PR/Assistant Superintendent		X	X
G. Jones	NUC PR/Plant Superintendent			X
N. Catron	NUC PR/POTC/Simulator Instructor (In Onsite Requalification Training)		X	
R. Armstrong	NUC PR/Assistant Shift Engineer		X	
H. L. Abercrombie	NUC PR/Assistant Manager, Nuclear Production			X
P. Border	NSRS/Nuclear Engineer	X		X
H. R. Fair	NSRS/Nuclear Engineer	X		X

B. Sequoyah Nuclear Plant

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
R. E. Adair	NUC PR/Unit Operator		X	
J. M. Anthony	NUC PR/ Operations Supervisor	X	X	
G. R. Bonneau	NUC PR/Instructor		X	
L. C. Bush	NUC PR/Shift Engineer		X	
A. M. Carver	NUC PR/Compliance Engineer			X
C. E. Dewese	NUC PR/Shift Engineer		X	
F. E. Frizzell	NUC PR/Training Officer		X	
R. C. King	NUC PR/Unit Operator		X	
R. L. Moore	POWER/Auditor			X
L. M. Nobles	NUC PR/Operations Section Supervisor		X	
T. E. Pitchford	NUC PR/Unit Operator		X	
W. R. Ramsey	NUC PR/Shift Engineer		X	
R. D. Seibert	NUC PR/Shift Engineer		X	
W. T. Stockdale	NUC PR/Asst. Shift Engineer		X	
J. R. Walker	NUC PR/Training Shift Engineer		X	
J. M. McGriff	NUC PR/Asst. Superintendent	X		X
C. H. Whitlemore	POWER/Auditor			
G. G. Wilson	NUC PR/ Operations Supervisor	X	X	
P. B. Border	NSRS/Nuclear Engineer	X		X
H. R. Fair	NSRS/Nuclear Engineer	X		X
R. W. Travis	NSRS/Nuclear Engineer			X
R. C. Sauer	NSRS/Nuclear Engineer			X

C. Watts Bar Nuclear Plant

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
W. L. Byrd	NUC PR/STA	X		X
C. R. Cook	NUC PR/Training Shift Engineer		X	
J. E. Cross	NUC PR/Asst. Plant Superintendent			X
G. W. Curtis	NUC PR/Plant QA Supervisor		X	
G. T. Denton	NUC PR/Operations Section Supervisor		X	X
R. L. Lewis	NUC PR/Asst. Plant Superintendent	X		X
R. C. Manley	NUC PR/Administrative Supervisor		X	
R. Norman	NUC PR/ Operations Supervisor		X	
L. Pauly	NUC PR/ Operations Supervisor		X	X
C. H. Whittlemore	POWER/Auditor	X		
P. B. Border	NSRS/Nuclear Engineer	X		X
H. R. Fair	NSRS/Nuclear Engineer	X		X

D. Power Operation Training Center

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
R. J. Johnson	NUC PR/Training Branch Chief		X	X
W. F. Popp	NUC PR/Training Assistant Branch Chief	X	X	X
W. E. Webb	NUC PR/Traning Officer (NSGPO)		X	X
C H. Noe	NUC PR/Simulator Instructor (PWR)		X	X
B. G. Jones	NUC PR/Simulator Instructor (BWR)		X	
H. A. Arnold	NUC PR/Supervisor (NSGPO)		X	X
K. Culberson	NUC PR/Simulator Instructor (BWR)		X	
P. R. Crabtree	NUC PR/Librarian		X	
H. S. Collins	NUC PR/Management Services Section Supervisor		X	X
J. V. Moore	NUC PR/Administrative Services Unit Supervisor		X	
J. W. Lehner	NUC PR/Engineering and Maintenance Services Section Supervisor		X	
R. McMillian	NUC PR/Assistant Unit Operator		X	
W. D. Dawson	NUC PR/NSGPO Instructor		X	
M. O. Walters	NUC PR/Instructor Training Supervisor		X	
P. B. Border	G MGR/NSRS/Nuclear Engineer	X		X
H. R. Fair	G MGR/NSRS/Nuclear Engineer	X		X

E. Nuclear Power Central Office

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
R. J. Johnson	NUC PR/Chief, Training Branch		X	X
W. F. Popp	NUC PR/Asst. Chief, Training Branch	X	X	X
R. C. Parker	NUC PR/Chief, Quality Assurance and Compliance Branch	X	X	X
W. E. Andrews	NUC PR/Supervisor, Quality Engineering and Compliance Group	X	X	X
P. B. Border	NSRS/Nuclear Engineer	X		X
H. R. Fair	NSRS/Nuclear Engineer	X		X

NOTE: Entrance and exit meetings conducted separately with QA and Training Branch.

F. Office of Power Quality Assurance Staff

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
T. B. Lee	POWER/Supervisor, OPQA&A	X	X	X
P. B. Border	NSRS/Nuclear Engineer	X		X
H. R. Fair	NSRS/Nuclear Engineer	X		X