

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-86-109-SQN

EMPLOYEE CONCERN: SQM-6-009-008

SUBJECT: TRAINING AND EXPERIENCE OF SELECTED SQN PLANT QA STAFF QC PERSONNEL

DATES OF INVESTIGATION: MARCH 5-26, 1986

INVESTIGATOR: Mary Anne Koltowich
M. A. KOLTOWICH

4/4/86
DATE

INVESTIGATOR: J. B. Rollins
J. B. ROLLINS

4/4/86
DATE

REVIEWED BY: L. E. Brock
L. E. BROCK

4/4/86
DATE

APPROVED BY: M. A. Harrison
M. A. HARRISON

4/7/86
DATE

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I. BACKGROUND

A Nuclear Safety Review Staff (NSRS) investigation was conducted to determine the validity of an expressed employee concern received by the Quality Technology Company (QTC)/Employee Response Team (ERT). The concern of record, as summarized on the Employee Concern Assignment Request Form from QTC and identified as SQM-6-009-008, stated the following:

Management (known) has lied to the P.O.T.C. (acronym not defined in mailer) and, by doing so, the NRC as well, regarding the training and experience of selected QA personnel. Nuclear Power department concern. No further information in file.

Additional information was provided by QTC which identified that the subject concern pertained to nuclear power quality control (QC) inspectors at Sequoyah Nuclear Plant (SQN). The inspection disciplines addressed by the concerned employee were Nondestructive examination (NDE) with the exceptions of radiographic testing (RT) and ultrasonic testing (UT), Mechanical, Electrical, Civil, Paint (protective coatings), and Receipt Inspection. The acronym P.O.T.C. pertains to the Power Operations Training Center and will be referred to hereafter as "POTC."

II. SCOPE

- A. The scope of the investigation was determined from the stated concern of record and entailed investigating two issues in order to either validate or refute the concern. The two issues were as follows:
 1. Formal training was provided by the POTC for QC inspectors as required.
 2. Experience obtained through on-the-job instruction and performance satisfied minimal experience requirements prior to certification.
- B. The concern was investigated by interviewing applicable personnel and by reviewing requirements and commitments, procedures and instructions, training manuals and records, QC inspector certification records, and audits/reports. This investigation was related to the certification process of QC inspectors in the Electrical, Mechanical, Receipt Inspection, Protective Coatings, and Civil disciplines. Training and experience for NDE certification of QC inspectors were encompassed in NSRS investigation report I-85-373-NPS (Ref. 1) and were, therefore, not included in this investigation.



III. SUMMARY OF FINDINGS

A. Requirements and Commitments

1. 10 CFR 50 Appendix B (Ref. 2), "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," required that:
 - a. the quality assurance program take into account the need for verification of quality by inspection and test (Criterion II),
 - b. the quality assurance program provide for the indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained (Criterion II),
 - c. a program for inspection of activities affecting quality be established and executed to verify conformance with documented instructions by individuals other than those who performed the activity being inspected (Criterion X), and
 - d. quality assurance records include closely-related data such as qualifications of personnel (Criterion XVII).
2. Topical Report, TVA-TR-75-1A, Revision 8 (Ref. 3), required that:
 - a. the Office of Nuclear Power (ONP) develop, maintain, and document a quality assurance training program for plant staff employees performing quality-affecting activities (paragraph 17.2.2.3),
 - b. training and indoctrination programs assure that personnel performing quality-affecting activities are trained and qualified in the principles and techniques of the activity being performed (paragraph 17.2.2.3), and
 - c. TVA be committed to Regulatory Guide 1.58, Revision 1 (Ref. 4), "Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel," which endorses ANSI N45.2.6-1978 (Ref. 5), "Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants" (Table 17D-3).

B. Procedures and Instructions

The Nuclear Quality Assurance Manual (NQAM) established the training and indoctrination programs as required by 10 CFR 50 Appendix B and the TVA Topical Report. The SQN AIs reviewed further implement the NQAM on a site-specific basis.

1. NQAM, Part II, Section 5.3A (Ref. 6), "Training and Certification Program for Quality Control Inspectors," stated that:



- a. this program satisfies the requirements of U.S. NRC Regulatory Guide 1.58 (September 1980) (Ref. 4) and ANSI N45.2.6-1978 (Ref. 5) with exceptions as defined in TVA-TR75-1,
 - b. Five disciplines including mechanical, electrical, paint (protective coatings), civil, and receipt inspection have been identified for which the plant may require certified inspectors,
 - c. inspector candidates successfully completing the required discipline training shall enter into a qualification period under the supervision of a plant QA supervisor, and
 - d. the qualification period shall be a minimum of three months for candidates with no previous experience. Candidates with documented previous experience in a discipline may have the qualifications period, or portion thereof, waived, and this waiver shall be in writing.
2. Administrative Instruction (AI-20) (Ref. 7), "Inspection Program," is an SQN site implementing instruction and states that inspectors be trained and certified in accordance with Part II, Section 5.3A, of the NQAM.
 3. AI-34 (Ref. 8), "Training and Certification Program for QC Inspectors," is an SQN site implementing instruction and defines the selection, training, qualification, certification, and evaluation requirements for QC inspectors.

C. Documentation Review

The NSRS investigators performed reviews of various documents to determine how training and qualification of QC inspectors were accomplished. The results of these reviews are described below.

1. SQN Inplant Survey Checklist No. 2-28-S-001, "QC Inspector Qualification and Certification Program" (Ref. 9), performed January 25-28, 1986, was reviewed for applicability to the subject matter of the employee concern. Several deficiencies were noted during the survey and were identified by Corrective Action Report (CAR) No. SQ-CAR-86-01-003 (categorized "significant") and a Nuclear Central Office Deviation Report (NCO DR) to the Quality Systems Branch. These deficiencies included expired certifications, lack of continuity documentation, inconsistencies on the SQN QA Staff master list of certified NDE inspectors, noncurrent eye exams, inadequate documentation of minimum prior NDE experience, and incomplete certification forms. The response to the CAR was also reviewed. The survey appeared thorough, and the deficiencies were identified as required. However, the survey did not appear to question evidence of on-the-job training (OJT) as noted on the certifications for the disciplines other than NDE. It should be noted here that documented evidence of specific OJT assignments was not required by the NQAM for disciplines other



than NDE. A signature of a certified inspector on the certification recommendation record attested to the ability of the inspector candidate to perform inspections adequately and independently.

2. Certification Records - POTC

A review of the POTC certification files for 16 SQN QC inspectors was performed. The POTC files are considered to be the official TVA QA records as required by the NQAM. These files contain the Certification Recommendations (Attachment 3s of NQAM, Part II, Section 5.3A), copies of eye exams, continuity documentation, and training course test grades. The files appeared complete with respect to POTC documentation with the exception of missing evidence of POTC training for one SQN QC inspector. Several of the recertification records indicated that past experience was waived as the individuals had been previously certified. However, no evidence of the previous certifications referenced were present in the POTC files. These previous certifications appear to have occurred prior to POTC being responsible for these files. NQAM, Part II, Section 5.3A, permits waivers for previous experience. However, the waivers will be in writing and shall specifically define the prior experience.

3. Certification Records - SQN Site QC Files

The SQN plant QA Staff QC section maintains certification files for SQN QC inspectors and inspectors on loan from other organizations. The TVA Topical Report and the NQAM charge the plant QA staff supervisor to assure that only appropriately certified inspectors be used to perform inspections. From these and POTC records, the QC section maintains a master list showing inspector names, disciplines fully or partially certified, dates of certification expiration, and eye exam dates. The SQN QA staff contends that the site files are for information only (not QA records) and will not guarantee the files to be complete. There are no specific requirements that require the site files to be QA records. These files were reviewed by the investigators in an effort to determine if any evidence existed as to specific OJT assignments given to inspector trainees during their qualification periods. No specific OJT assignments were noted.

4. Daily Work Logs - SQN Site QC

The QC shift coordinators maintain informal daily work logs listing work assignments. These logs reference the work document number, the assigned inspector(s), dates, and times. Inspector trainee initials were sometimes entered. It was noted that the logs were not always complete and contained numerous changes. It was indicated by the shift coordinators that these logs were used only to aid in the dispatching of inspectors and not as justification of OJT. However, these logs can provide some evidence of OJT. As these logs are not defined as required



QA records, they cannot be used as a basis in determining whether inspector trainees had enough OJT to adequately support certification.

5. Personnel History Records (PHR) - Training Documentation

PHRs for 16 inspectors were reviewed to determine if any other evidence of training (formal and OJT) existed. Most of the inspectors reviewed had evidence of attending various training courses at POTC. No evidence of OJT was noted.

6. QC Inspector Training Manuals

QC Inspector Training Manuals were developed by POTC and approved by the appropriate QA organization. The QA organization is responsible for the overall training and certification program for QC inspectors. NQAM, Part II, Section 5.3A, requires these manuals to include subject matter required to indoctrinate candidates with technical objectives, the codes and standards to be used, and quality assurance methods to be employed. These training manuals did not require documentation of specific OJT assignments as these manuals only pertain to the classroom training provided by POTC. Conversations with POTC and plant QC staff personnel indicate these manuals are being reviewed and revised.

7. OJT Training Manual for QC Inspectors

POTC and Division of Quality Assurance (DQA) personnel recently developed, issued, and implemented a comprehensive manual geared toward the plant specific training performed by the plant QA staffs. This program is applicable to all new certifications with some provisions for recertifications. This manual and program require that evidence supporting OJT experience in the form of specific work assignments be maintained as QA records.

D. Interview Information

1. POTC personnel involved with QC inspector training stated that the training center was a service organization providing requested training. They develop the classroom training and submit it to DQA for review and approval. The POTC maintains the official certification records/files for Nuclear Power QC inspectors. The certification file for an individual inspector contains exam grades, current eye exam forms, completed certification recommendation forms, and continuity documentation. Any recommendation for QC inspector certification or recertification is verified for successful completion of the applicable POTC training courses and that a current eye examination is in the file. If these conditions are met, the recommendation form is endorsed by POTC and sent to DQA for approval and certification. The NQAM requires that OJT is



the responsibility of the plant QA staffs at the respective plants. Under the new OJT training program, documentation supporting OJT will be part of the initial certification recommendation package and will be included in the file.

2. QC management employees stated that the POTC training provided a good fundamental understanding for inspection work. The rest of an inspector's knowledge was obtained through OJT and working with the craft. OJT consisted of becoming familiar with SQN procedures/instructions and accompanying certified inspectors on work assignments in order to become proficient at conducting inspections. The inspections the trainee participated on were documented on OJT forms (Inspection Experience and Qualification Logs). When the certified inspector believed the trainee could adequately and independently perform the inspection, the certified inspector signed the trainee's Certification Recommendation form (Attachment 3 of NQAM, Part II, Section 5.3A). When questioned about falsified OJT, the QC managers stated that they were not aware of any such instances. They also pointed out that some trainees picked up the knowledge and skills quicker than others; therefore, some trainees did not have to participate on a lot of jobs (inspections) before being recommended for certification. After the certification was obtained, it was common practice for the new inspector to discard the forms that documented the OJT. It should be noted that there was no requirement to keep these forms.
3. QC inspection personnel stated that the training received at the POTC provided good generic instruction for QC work. Plant specific instruction and training were obtained through OJT at SQN. OJT consisted of learning the plant specific procedures/instructions; becoming familiar with workplans, drawings, plant equipment, etc.; and participating in inspections with a certified inspector. When the certified inspector thought the trainee could do the inspection independently, the recommendation for certification was signed by the certified inspector. When asked if they had any knowledge of falsified OJT, the majority of the inspectors interviewed stated that they did not. Some of the inspectors stated that they had feelings or indications that OJT was falsified but could not provide any specifics or details. A few inspectors stated that in some areas there was little or no activity and subsequently little or no OJT at the plant; i.e., cable tray installation, alignment, and valve operators. However, the inspectors were recommended for certification anyway. A few inspectors expressed opinions that how quickly you progressed through the certification process depended on how well you were liked by management. The number of certifications an inspector holds is a principal requirement for promotion. Some inspectors felt they were not treated fairly since a few inspectors appeared to be favorites; i.e., obtaining their certifications quickly, and therefore, promoted faster. The inspectors stated that inspection experience and qualification log forms (OJT) documenting inspection work in which the trainee



participated were usually discarded after the recommendation for certification was signed. Again, it should be noted that these forms were neither required QA records nor part of the certification record. As a result, little evidence of specific OJT assignments exist. During the course of these interviews it became evident that a fair amount of internal conflict exists within the QC section. Complaints voiced by inspectors included favoritism, poor rotation of "dirty" jobs, apprehension of management changes, and pressure from production for more inspection capability (or inspectors with more certifications). These complaints appear to be indicative of poor communications between QA/QC management and inspectors and at times between the inspectors themselves.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. The first issue relating to Employee Concern SQM-6-009-008 (Section II.A.1) was not substantiated by NSRS as evidence indicated that QC inspection personnel recieved the required POTC training. However, missing test score documentation was noted for one of the POTC certification files received (Section III.C.2). See NSRS Recommendation I-86-109-SQN-01.
2. The second issue relating to Employee Concern SQM-6-009-008 (Section II.A.2) was substantiated by NSRS for the following reasons.
 - a. Evidence exists that some recommendations for certification were signed off as complete when little or no opportunity for OJT existed during the qualification period; i.e., cable tray installation (Electrical discipline), alignment (Mechanical), and valve operators (Electrical) (Section III.D.3). See NSRS Recommendations I-86-109-SQN-02 and I-86-109-SQN-03.
 - b. No evidence for referenced previous certifications for several QC inspectors could be located in the POTC files. These previous certifications were used as the basis for waiving previous experience/OJT. The NQAM requires waivers to specifically define the prior experience (Section III.C.2). See NSRS Recommendation I-86-109-SQN-04.
3. As previously discussed in the report, evidence of specific OJT assignments was not required to be kept as QA records, and many of these "informal" documents were discarded after the appropriate certifications were obtained. The daily logs maintained by the shift supervisors are also not QA records and were not intended to provide documented evidence of OJT. See NSRS Recommendation I-86-109-SQN-05.
4. The official QC certification files are maintained by POTC. The SQN plant QA staff does not keep a copy of the complete set of these records. Other means of assuring only certified



inspectors are used must be employed, such as the master list discussed in Section III.C.3. The plant QA staff, not the POTC, is responsible for assuring that only certified inspectors are used. See NSRS Recommendation I-86-109-SQN-06.

5. The complaints voiced by the QC inspectors were not considered by NSRS to be nuclear safety-related issues as the inspectors appeared in general to be competent and highly conscientious in performing their jobs. However, management should take the appropriate actions to improve employee/management communications and provide more open exchanges of information (Section III.D.3).

B. Recommendations

1. I-86-109-SQN-01, POTC Certification Files

Locate the missing test score documentation for the subject inspector (name provided upon request); or appropriately document, evaluate, and correct any nonconforming conditions as required. [P2]

2. I-86-109-SQN-02, Lack of OJT Experience

Provide assurance that inspectors with inadequate OJT in the subject areas have not performed any associated inspections. If assurance cannot be provided, appropriately document, evaluate, and correct any nonconforming conditions as required. [P2]

3. I-86-109-SQN-03, Provisions for OJT

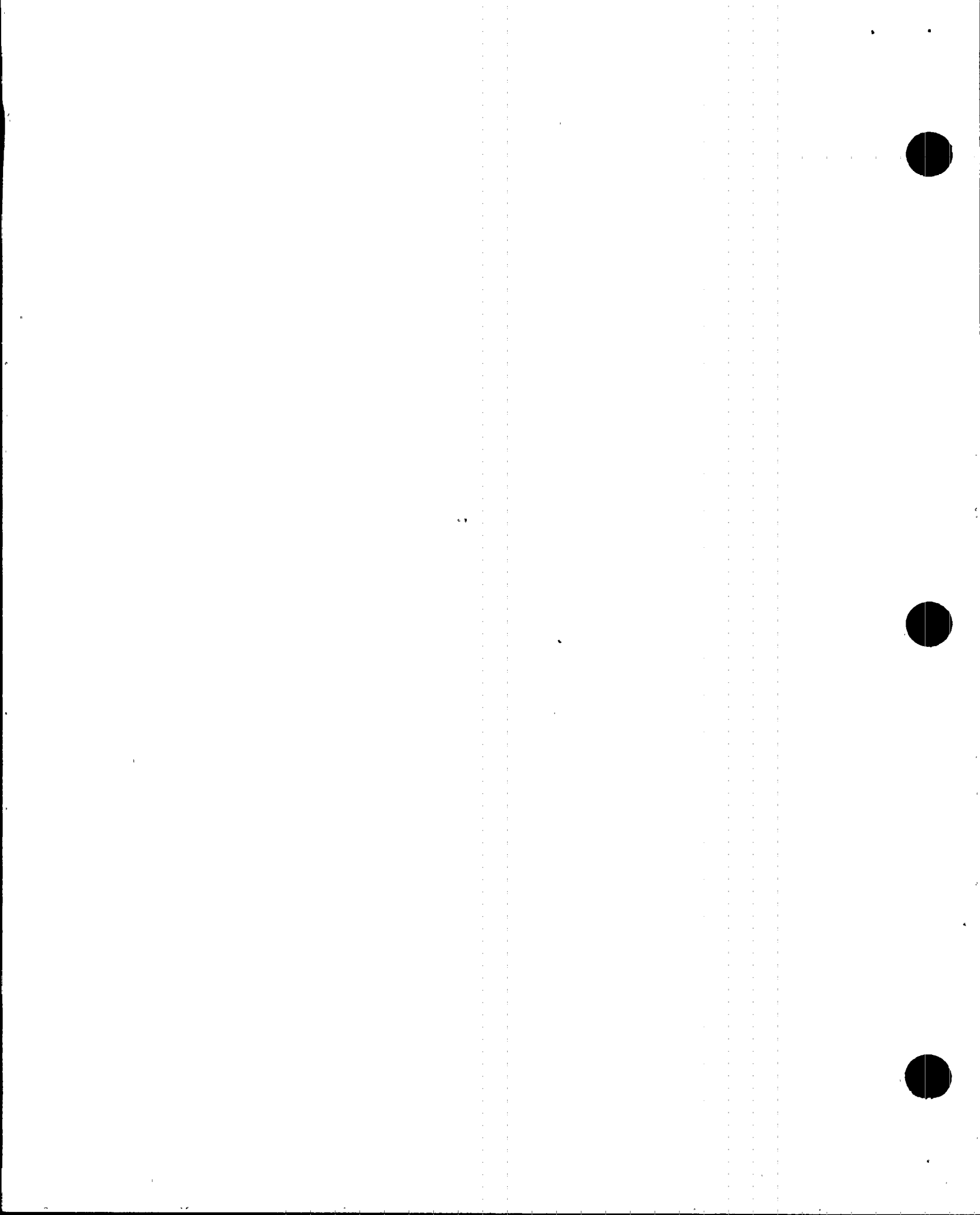
Develop, implement, and document appropriate methods to address and provide OJT for activities that are not ongoing (Section III.D.3). [P3]

4. I-86-109-SQN-04, Waivers for Previous Experience

Review the POTC certification files and determine the QC inspectors for whom evidence of referenced previous certifications does not exist in the file. Locate the referenced previous certifications. If the previous certifications cannot be located, appropriately document, evaluate, and correct any nonconforming conditions as required. [P2]

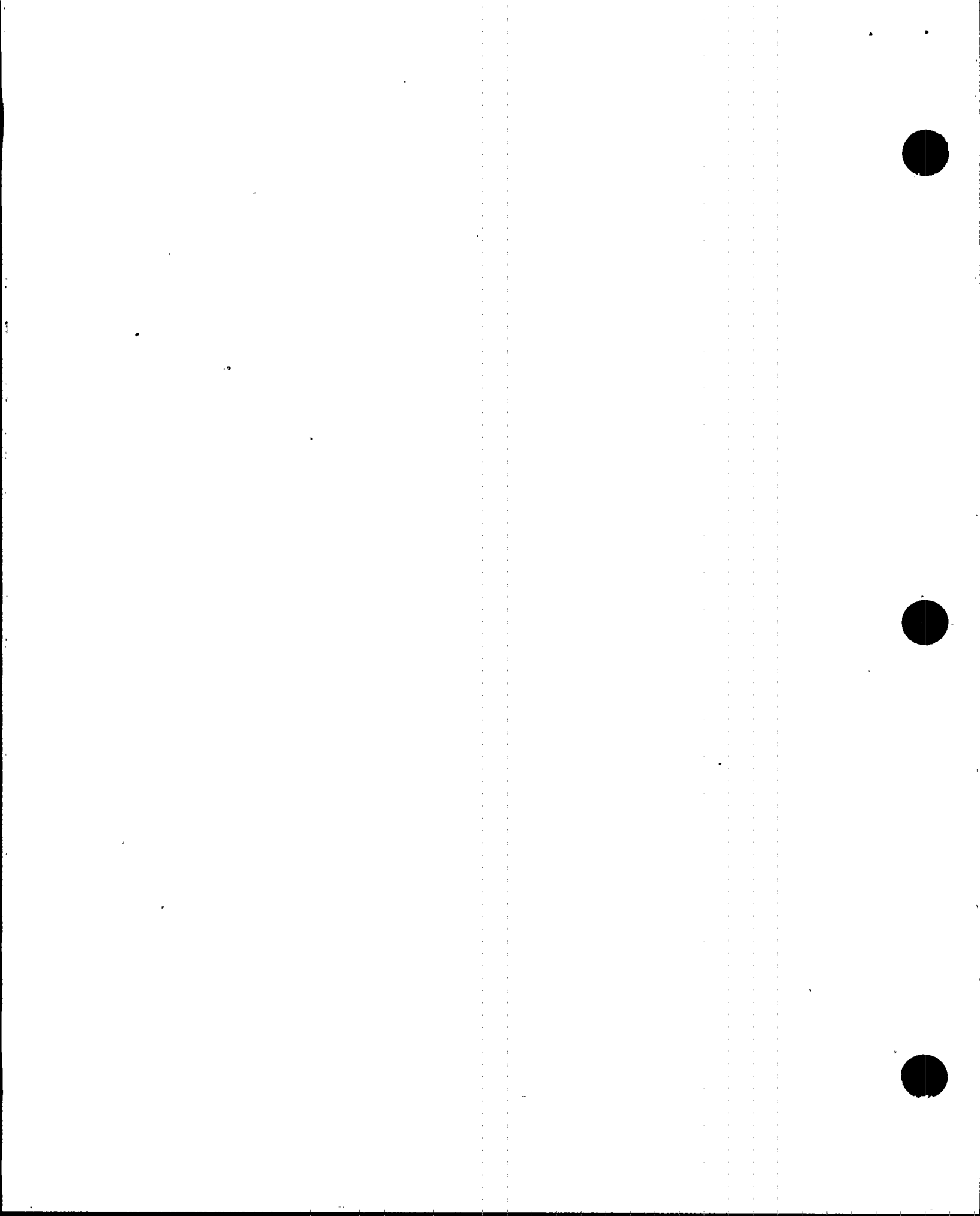
5. I-86-109-SQN-05, Documentation of Specific OJT Experience

The newly implemented OJT Training Manual for QC inspectors provides for documentation of specific OJT assignments. Maintain this documentation as QA records to preclude problems of the type exemplified by the employee concern and this report from recurring in the future. [P3]



6. I-86-109-SQN-06, Maintenance of QC Certification File

Methods should be established to enable the certification records to be readily identifiable and retrievable in accordance with established QA record requirements. This may be accomplished by maintaining a duplicate set of hard-copy files or by providing microfilm at the site. This file need only contain the Certification Recommendations (Attachment 3s of NQAM, Part II, Section 5.3A). This recommendation applies to all TVA nuclear plant sites and facilities that provide QC inspectors for nuclear safety-related inspection activities.
[P3]



DOCUMENTS REVIEWED IN INVESTIGATION I-86-109-SQN
AND REFERENCES

1. NSRS Investigation Report I-85-373-NPS, "Documentation of Required OJT for NDE Personnel Certification"
2. 10CFR50 Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants"
3. Topical Report TVA-TR-75-1A R8
4. U.S. NRC Regulatory Guide 1.58, Qualification of Nuclear Power Plant Inspection, Examination, and Testing Personnel," RI dated September 1980
5. ANSI/ASME N45.2.6-1978, Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants"
6. Nuclear Operational Quality Assurance Manual Part II, Section 5.3A, "Training and Certification Program for Quality Control Inspectors"
7. SQN Administrative Instruction AI-20, "Inspection Program"
8. SQN Administrative Instruction AI-34, "Training and Certification Program for QC Inspectors"
9. SQN Inplant Survey Checklist No. 2-28-5-001, "QC Inspector Qualification and Certification Program;" Corrective Action Report SQ-CAR-86-01-003; and the associated CAR response.
10. ANSI N18.7-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants"
11. ANSI N45.2.4-1972, "IEEE Standard - Installation, Inspection, and Testing Requirements for Instruction and Electrical Equipment During the Construction of Nuclear Power Generating Stations"
12. ANSI N45.2.8-1975, "Supplementary Quality Assurance Requirements for Installation, Inspection and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants"
13. ANSI/ASME N45.2.5-1978, "Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete, Structural Steel, Soils, and Foundations During the Construction Phase of Nuclear Power Plants"
14. ANSI N101.4-1972, "Quality Assurance for Protective Coatings Applied to Nuclear Facilities"
15. TVA 12B Job Description, Engineering Aide, SE-4, Quality Control Section
16. TVA 12B Job Description, Engineering Associate, SE-5, Quality Control Section



UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: H. L. Abercrombie, Site Director, Sequoyah Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: FEB 21 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. XX-85-027-X08

Subject RESPONSIBILITY/AUTHORITY

Concern No. XX-85-027-X08

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached Priority 2 [P2] recommendations by March 28, 1986. Should you have any questions, please contact Michael A. Harrison at telephone 2354.

Recommend Reportability Determination: Yes ; No X

Arrival

WATTS BAR NUCLEAR PLANT SITE DIRECTOR'S OFFICE			
MAR 03 '86			
	Note	Action	Reply
Pri Mgr			
Mod Mgr			
SS Mgr			
OS Mgr			
QA			
Personnel			
Finance			
Compliance			
Int Office			
KC TO ARMS			
F:FS			

[Signature]
 Director, NSRS/Designee

MAH:GDM

Attachment

cc (Attachment):

- W. T. Cottle, WBN
- W. C. Bibb, BFN
- James P. Darling, BLN
- R. P. Denise, LP6N40A-C
- W. E. Mason, E11C49 C-K--Evaluate for possible legal complications.
- D. R. Nichols, E10A14 C-K
- QTC/ERT, Watts Bar Nuclear Plant
- E. K. Sliger, LP6N48A-C

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NSRS RECOMMENDATIONS

XX-85-027-X08 R2

Q-85-027-X08-1, "Responsibility/Authority" - The responsibility and authority of positions of a technical leadership "supervisory" nature should be clearly defined. NSRS is aware of the current ONP effort to accomplish this, and further action or response to this item is not required.

Q-85-027-X08-2, "Indeterminate Inspections" - Per conversation with QTC, NSRS concurs with QTC's evaluation that a safety significant problem with the material inspected by uncertified personnel did not exist due to subsequent installation and testing inspections. However, an NCR should be written to document that uncertified personnel were used to perform QC acceptance inspections. The NCR should be evaluated for generic implications. [P2]

Prepared By:


M. A. Harrison

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