TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-734-SQN

EMPLOYEE CONCERN: XX-85-102-012

SUBJECT: TRAINING OF HEALTH PHYSICS TECHNICIANS

DATES OF INVESTIGATION: NOVEMBER 4-15, 1985

INVESTIGATOR: D. J. Hornstra — D. J. HORNSTRA — DATE 3/10/86

REVIEWED BY: L. E. Brock — L. E. BROCK — DATE 3/10/86

APPROVED BY: W. D. Stevens — W. D. STEVENS — DATE 3/10/86

I. BACKGROUND

A Nuclear Safety Review Staff (NSRS) investigation was conducted to determine the validity of an expressed employee concern as 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 XX-85-102-012, stated:

> Sequoyah: The permanent plant Health Physics personnel are poorly trained. CI (concerned individual) does not feel the present HP staff has an adequate knowledge of working in radiated areas. Nuclear Power Dept. concern. CI has no additional information.

On November 13, 1985, the investigator requested additional information from QTC to define "knowledge of working in radiated areas." As of January 6, 1986, QTC had made two unsuccessful attempts to perform follow-up interviews with the CI, including a note left at the CI's home.

II. SCOPE

Without any specific concerns identified by the CI, the scope of this investigation was determined from the concern of record to entail a general evaluation of the adequacy of the SQN Health Physics (HP) Technician training. The investigation included a review of procedures for training personnel, identification of results of previous internal and external reviews of the training program, and interviews with HP personnel in management, training, and senior technician positions, and with Modifications personnel.

III. SUMMARY OF FINDINGS

A. Requirements and Commitments

1. SQN Technical Specifications 6.3.1 (Ref. 1) requires that each member of the unit staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions.

2. ANSI N18.1-1971 (Ref. 2) provides the following standards.

   a. Section 5.3.4 states that technicians shall be trained by on-the-job training (OJT) or by related technical training to meet the qualification requirements of Section 4.5.

   b. Section 4.5.2 states that technicians in responsible positions shall have a minimum of two years' working experience in their speciality. These personnel should have a minimum of one year of related technical training in addition to their experience.

(1) Section 4.1 states that OJT may qualify as equivalent to nuclear power plant experience on a one-for-one basis for up to a maximum of one year's credit toward the nuclear power plant experience.

(2) Section 2.2.7 defines OJT as participation in nuclear power plant startup, operation, maintenance, or technical services under the direction of appropriately experienced personnel.

3. NUC PR Nuclear Training Program Area Plan 3, Procedure 0202.12 (Ref. 3), has the stated objective of providing training and experience in nuclear power plant health physics fundamentals and methods. It states that its training program will provide the background necessary for the employee to monitor and evaluate radiological conditions in accordance with ANSI N18.1-1971.

The training program identified by Procedure 0202.12 consists of an approximate 4-month classroom and related laboratory training phase at Power Operations Training Center (POTC) followed by an in-plant phase for an additional 20 months of OJT. During this period, the individual is designated as a Health Physics Technician - Trainee, SE-4. The in-plant phase includes the following elements.

a. The initial six months of OJT is conducted to complete tasks as identified on the performance verification sheet.

b. After successful completion of each section of the performance verification sheet, including an oral exam by one or more members of the Health Physics Staff, the trainee is considered qualified to perform independent work in that section, except for those tasks specifically identified in plant procedures which must be performed by a qualified SE-5 technician.

B. Findings

1. SQN Health Physics Section Instruction Letter, ASIL-3 (Ref. 4), delineates the SQN program to meet NUC PR Procedure 0202.12. ASIL-3 was found to adequately impose Procedure 0202.12 requirements.

2. Internal and external reviews have been conducted of the Health Physics Training Program, with no deficiencies noted that would relate directly to the quality of the training received by the HP technicians. The following reviews have been conducted on the SQN Health Physics Training Program.

a. The Nuclear Training Branch completed a self-evaluation in 1983 (Ref. 5) in preparation for an Institute of Nuclear Power Operations (INPO) review.

b. The SQN HP technician training received INPO accreditation in 1984 (Ref. 6).

c. INPO evaluated SQN (including HP technician training) in 1985 (Ref. 7).

d. The Quality Audit Branch, DQA, performed an audit (Ref. 8) on the Health Physics Training and Staff Qualification in 1985.

3. In response to a request from the Nuclear Training Branch for biennial feedback on the quality of training, SQN Health Physics Section submitted feedback (Ref. 9) identifying the following areas for improvements.

a. Airborne radionndide origin and behavior.

b. Maximum Permissible Concentrations (MPCs) and MPC hours.

c. Familiarity with 10CFR20.

d. Application of radiation limits to real life situations.

e. Operational theory of instrumentation.

An interview with one individual who had provided an input into this SQN training feedback (Individual A) revealed that deficiencies in these areas were minor and did not indicate any degradation in the overall quality of the HP technician training.

Based upon a review of the 1985 feedbacks received by the Nuclear Training Branch for SQN (Ref. 9) and BLN (Ref. 10) and the 1983 feedbacks for BFN (Ref. 11) and SQN (Ref. 12), the HP staffs at the plants have been critically evaluating the training program and have found only minor deficiencies.

4. HP management (individuals A through E), TVA senior HP technicians (individuals F through M), contract senior HP technicians (individuals N and O), and Nuclear Training management (individual P) were interviewed. The following training weaknesses/areas of improvement were identified from these interviews.

a. The basic phase (at POTC) received few comments from the senior HP technicians. Several would have preferred more laboratory work or an early transfer to the plant for OJT. One technician would have preferred additional information on the sources of the irradiated materials in the plant. One of the contract HP technicians (individual N) considered the TVA basic phase to be above the average of those plants he had worked at.

b. Most individuals found the six-month initial in-plant phase to be comprehensive. Although some suggestions were made to the investigator on ways to improve the quality of training during this period (i.e., rotation to other crews to obtain different approaches, spending more time in containment during outages), no areas of inadequacy in the initial in-plant phase were found.

5. Procedure 0202.12 states that "the in-plant phase is detailed in Appendix 2 (Ref. 3) and consists of 20 months of on-the-job training in a TVA nuclear plant." Appendix 2 provides only the Performance Verification Sheet which is to be completed within the first 6 months of the in-plant phase. The investigator determined that the remaining 14 months of in-training status was not "on-the-job training" as defined by ANSI N18.1-1971 but was independent work that met the ANSI N18.1 requirement for "experience" needed to become a qualified technician. Although an inconsistency exists between the use of the term "on-the-job training" by TVA and the ANSI N18.1 for health physics training, the qualification process for HP technicians, as described in Procedure 0202.12 and ASIL-3, was consistent with that in ANSI N18.1.

6. Modifications management (individuals Q, R, and S) stated that they considered the qualified HP technicians to be technically adequate. Individual Q noted that the inconsistencies in protective clothing requirements among technicians had decreased over recent years, indicating more rigorous training in this area.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

The concern of record was not substantiated. NSRS could find no substantiative evidence that the permanently assigned SQN HP technicians were poorly trained. Evidence was found, in the form of both external and internal reviews of the training program, that an adequate training program exists.

B. Recommendations

None.

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DOCUMENTS REVIEWED IN INVESTIGATION OF I-85-734-SQN
AND REFERENCES

1. SQN Technical Specification 6.3.1, "Unit Staff Qualifications"

2. ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel"

3. NUC PR Program Manual, Program Area 2, Nuclear Training Program, Procedure No. 0202.12, "Health Physics Training (Non-GET) Procedures," RO, dated May 6, 1985

4. SQN Health Physics Section Instruction Letter, ASIL-3, "Orienting and Qualifying of Scientific Aides and Health Physics Technicians for In-Plant Work at Sequoyah Nuclear Plant," dated May 21, 1984

5. "The Training of Health Physics Technicians and Radiochemical Laboratory Analysts for the Tennessee Valley Authority Sequoyah Nuclear Power Plant - A Self-Evaluation Prepared for the Institute of Nuclear Power Operations by the Nuclear Training Branch, Tennessee Valley Authority," dated August 29, 1983

6. Letter from E. P. Wilkinson (INPO) to H. G. Parris dated January 13, 1984 (L47 840120 723)

7. Letter from P. M. Beard (INPO) to J. P. Darling dated May 23, 1985 (Limited Distribution)

8. Memorandum from G. W. Killian to Those listed, "Transmittal of QAB Report No. QSS-A-85-0012" (L17 850905 800)

9. SQN Section Supervisor, "Health Physics Technician Training Program Evaluation Questionnaire" (for 1985, but undated)

10. TVA 45D, S. R. Howard to M. H. Martin, "Health Physics Technician Training Program," dated May 21, 1985

11. BFN Section Supervisor, "Health Physics Technician Training Program Evaluation Questionnaire," (received at POTC October 25, 1983) with HPTU Actions Taken

12. Memorandum from C. C. Mason to N. E. Scott, "Health Physics Technician (HPT) and Radiochemical Laboratory Analyst (RLA) Training Program Evaluation," dated June 23, 1983 (L53 830621 954)

13. Health Physics Training Unit (HPTU), "Actions Taken to SQN Supervisor Feedback Questionnaire" (no transmittal)

14. Letter from D. M. Verrelli (NRC) to H. G. Parris, "Report Nos. 50-327/84-34 and 50-328/84-34," dated November 21, 1984 (A02 841130 005)

15. POTC Chemistry, Health Physics and Safety Training Section Instruction Letter T-6, "RLA/HT Training Program Content Feedback Memorandum," dated November 11, 1983

TVA 24 (OS-9-65) (OP-WP-9-85)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

OP

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

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

DATE: MAR 1 1 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-734-SQN

Subject TRAINING OF HEALTH PHYSICS TECHNICIANS

Concern No. XX-85-102-012

No response or corrective action is required for this report. It is being transmitted to you for information purposes only. Should you have any questions, please contact W. D. Stevens at telephone 6231 .

Recommend Reportability Determination: Yes ____ No X

Director, NSRS/Designee

WDS:GDM
Attachment
cc (Attachment):
W. C. Bibb, BFN
W. T. Cottle, WBN
James P. Darling, BLN
R. P. Denise, LP6N40A-C
G. B. Kirk, SQN
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3/13/86

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