

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-218-SQN

EMPLOYEE CONCERN XX-85-027-X03

SUBJECT: USE OF NONCONFORMING ELECTRICAL CABLE - PJJ AND PNJ  
TYPES

DATES OF INVESTIGATION: SEPTEMBER 24 - OCTOBER 7, 1985

LEAD INVESTIGATOR: R. E. McClure 3/13/86  
R. E. MCCLURE DATE

INVESTIGATOR: L. E. Brock for 3/17/86  
W. R. SIMONDS DATE

REVIEWED BY: D. J. Hornstra 3/17/86  
D. J. HORNSTRA DATE

APPROVED BY: W. D. Stevens 3/17/86  
W. D. STEVENS 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 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-85-027-X03, stated:

TVA informed the NRC that cable had been removed from the site in 1981. When in fact the cable was still being removed in 1984. This is documented on an NCR SQM EEB 8019R1.

NCR SQM EEB 8019 was initiated September 15, 1980, and was superseded by revision 1 to the NCR on April 9, 1981. Revision 1 was closed on July 15, 1981.

## II. SCOPE

- A. The scope of this investigation was determined from the concern of record and from discussions with QTC to entail one issue requiring investigation; i.e., nonconforming electrical cable (TVA types PJJ and PMJ) may have been installed in the plant after NCR SQM EEB 8019R1 was closed and thus has not been documented or evaluated by the Office of Engineering (OE). These cable types were to have been removed from the site to prevent additional installations as documented on the referenced NCR.
- B. To conduct this investigation, NSRS reviewed documents and interviewed personnel to determine the sequence of events, what was communicated to NRC, and what action is being taken to resolve this potential problem.

## III. SUMMARY OF FINDINGS

### A. Requirements and Commitments

1. 10 CFR 50.49, "Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Plants"
2. 10 CFR 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts or Components," and Criterion XVI, "Corrective Action"
3. TVA Topical Report TVA TR75-01, Sections 17.1.15, "Nonconforming Materials, Parts, or Components," and 17.1.16, "Corrective Action"

## B. Findings

1. As a result of OE evaluations of NUREG-0588, specific applications of PJJ and PNJ types of cable were identified as not qualified for the accident environment. Nonconforming Condition Report SQN EEB 8019 was then initiated. TVA letters (Refs. 13 and 27) were sent to NRC informing them of the 10 CFR 50.55(e) deficiencies. Five status reports from June 16, 1980, to June 29, 1981, concerning NCRs written on environmental qualification, were sent to NRC. All five, however, did not address PJJ and PNJ cable. The fourth and fifth interim reports and the final report included NCR SQN EEB 8019. The April 3, 1981 final report stated in the part concerning cable:

TVA has determined that the low current loads on the cables will allow them to function in the adverse environment without experiencing cable insulation damage. The cables will, therefore, not require replacement. (Ref. 13)

None of these letters contained information that told the NRC that unused PJJ and PNJ cables were removed from SQN in order to prevent further installation.

2. The action required to prevent further installation of these types of cable, as documented in section 16 of the NCR, was to remove from the site all remaining cable of TVA types PJJ and PNJ. Although this was not completed in a timely manner, a large amount of PJJ and PNJ cable was removed from Sequoyah Nuclear Plant (SQN) (Ref. 5). NCR 8019R1 improperly stated that all PJJ and PNJ cable had been removed by Transfer Requisition 828512.
3. Workplan documentation shows some PJJ cables were installed in safety systems at SQN after NCR SQN EEB 8019R1 was closed (Ref. 25).
4. SQN Construction NCR 2925 was written April 4, 1984, when it was determined that nonconforming PJJ and PNJ cable had been released from the warehouse to SQN Nuclear Power and Construction personnel for installation. Commitment Action Tracking Report 84090 was issued by SQN in July 1984 and is still open.
5. The adequacy of all PJJ- and PNJ-type cables at SQN is presently being evaluated and documented within the Environmental Qualification (EQ) Project and is to be completed prior to SQN restart, as noted in the September 17, 1985 letter from W. J. Dircks, NRC, to TVA (Ref. 19). As part of the EQ Project, TVA has contracted with Wylie Laboratories to qualification test cables in specified environments. The cable test

summary to NRC is tracked by the Nuclear Licensing Branch as NCO-85-0322-001. Individual G provided information that the subject cable qualification test results are to be in Binders SQN-EQ-CABL-001, -015, -020, and -034. The NSRS investigator reviewed the issued copy of EQ Binders SQN-EQ-CABL-001, -015, and -020. Also, the responsible engineer was interviewed to determine that the remaining cable qualification data would be issued in EQ Binder CABL-034 prior to SQN restart.

#### IV. CONCLUSIONS AND RECOMMENDATIONS

##### A. Conclusions

1. The employee concern is substantiated in that all PJJ and PNJ cable was not removed from the site as stated in the NCR. No evidence was found that the NRC was improperly notified. At the time of NCR SQN EEB 8019R1 closing, inadequate action was taken to prevent further installation, and action was not taken to ensure that all unused cable had been removed from the site. Failure to write a site NCR as required by Construction Procedure No. P-2 and to quickly remove from the site these cable types resulted in its subsequent noncontrolled use. However, the adequacy of PJJ and PNJ cables installed at SQN is being evaluated as part of the electrical equipment Environmental Qualification Project. Any corrective actions or limitations will be identified and completed under that project.
2. Electrical Qualification Binders SQN-EQ-CABL-001, -015, and -020 do contain information addressing the adequacy of PJJ cable. Binder CABL-034 has not been issued as of February 11, 1986.
3. During this investigation it was noted that individuals in several TVA organizations (SQN Modifications, SQN Design Services, and EEB) were very familiar with the fact that other types of cable are better than PJJ and PNJ. Therefore, it is unlikely that PJJ and PNJ will be procured for future class 1E use.

##### B. Recommendations

I-85-218-SQN-01, EQ Binder CABL-034

OE to provide evidence to ensure that EQ Binder CABL-034 has been issued and the cables have been deemed adequate for startup. [P1]

DOCUMENTS REVIEWED IN INVESTIGATION I-85-218-SQN  
AND REFERENCES

1. Letter from J. A. Domer, Nuclear Licensing Branch, to H. R. Denton, NRC, "Update of Status Concerning Environmental Qualification of Electrical Equipment" (L44 850724 801)
2. List of PJJ and PNJ cable issued at SQN to Paul Craighead from Mike Sedlacik dated June 1, 1984
3. Commitment or Corrective Action Report 84090 (SQN)
4. NCR WBN EEB 8101R2 (EEB 810205 929)
5. Transfer Requisition 828512 and Shipping Tickets, MEDS Reel 2097 Frame 488
6. Electrical Design Guide DG-E12.1.12R1
7. Memo from J. A. Raulston to T. G. Campbell, "Transmittal of Closed NCRs" (NEB 830211 260)
8. Memo from F. W. Chandler to J. C. Standifer, "NCR SQN EEB 8019R1" (EEB 830106 910)
9. NCR Completion Verification Sheet - EEB 830106 910
10. Memo from P. L. Duncan to F. W. Chandler, "EN DES NCR Completion Verification and Closure" (QAB 821129 006)
11. Memo from (unreadable) to R. W. Cantrell, "Evaluation of Presently Installed Insulated Conductor - Type PNJ and PJJ" (WBN 801023 118)
12. Memo from F. W. Chandler to R. A. Costner, "NCR SQN EEB 8019," dated April 9, 1981 (EEB 810612 923)
13. Letter from L. M. Mills to J. P. O'Reilly, NRC, "NCR 8019 - Final Report," dated April 3, 1981 (A27 810403 030)
14. WBN - NRC Exit Meeting October 17, 1980 (WBN 801030 001)
15. Memo from R. W. Cantrell to F. W. Chandler, "SQN Insulated Conductors - Types PJJ and PNJ - NCR SQN EEB 8019R1" (SWP 801006 025)
16. ARMS sort on SQN EEB 8019
17. MEDS sort on SQN EEB 8019
18. SQN Cable Inventory Sort dated September 25, 1985
19. Letter from W. J. Dircks (NRC) to Chairman Dean, "Necessary Documentation to Resolve Concerns Prior to Restart," dated September 17, 1985

20. NCR SQN 2925 dated April<sup>4</sup>, 1984  
NCR SQN EEB 8019 and 8019R1
21. Memo from J. Hamilton to R. Alsup, "Reportability of NCR 2925," dated  
June 26, 1984
22. Memo from C. Brannon to J. Hamilton, "Cable Inventory," dated May 31, 1984
23. TVA 45 from M. Harding to J. Hamilton, "NCR 2925 Not Reportable," dated  
April 17, 1984
24. TVA 45 from C. Brannon to J. Robinson, "PJJ and PNJ Cable Removed from  
Warehouse and Nonconformed," dated May 31, 1984
25. SQN Workplan 10144 (available in SQN QA Records Vault)
26. Environmental Qualification Binders, SQN EQ-CAB., -001, -015, -020
27. Letters from L. M. Mills to J. P. O'Reilly, NRC, "SQN Unit 2 -  
Environmental Qualification of Class IE Equipment - NCR's SQN EEB  
8009 through 8015 and 8019"

Fifth Interim Report A27 810225 010  
Fourth Interim Report A27 801121 009  
Third Interim Report A27 800910 010  
Second Interim Report A27 800821 012  
First Interim Report A27 800716 012

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 : March 17, 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

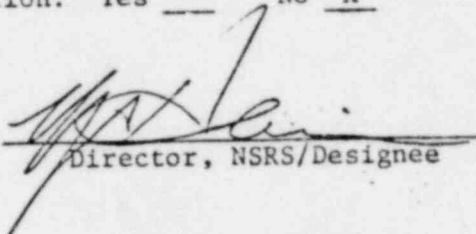
Transmitted herein is NSRS Report No. I-85-805-NPS

Subject: DECENTRALIZING THE QUALITY AUDIT PROGRAM

Concern Nos.: XX-85-113-001, XX-85-113-002, XX-85-113-003

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 extension 6231-K.

Recommend Reportability Determination: Yes  No

  
 Director, NSRS/Designee

WDS:BRP  
Attachment

cc (Attachment):

- W. C. Bibb, BFN
- W. T. Cottle, WBN
- J. P. Darling, BLN
- R. P. Denise, LP6N40A-C
- G. B. Kirk, SQN
- M. L. Martin, WBN
- D. R. Nichols, E10A14 C-K
- QTC/ERT, WBN
- E. K. Sliger, LP6N48A-C
- J. H. Sullivan, SQN (2)

WATTS BAR  
NUCLEAR PLANT  
SITE DIRECTOR'S OFFICE

MAR 19 '86

	NOB	Action	Reply
Mr. May			
Miss May			
NS May			
JS May			
QA			
Personnel			
Finance			
Compucons			
Inf. Office			
XC TO ARMS			

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