

QUALITY
TECHNOLOGY
COMPANY

P.O. BOX 600

Sweetwater, TN 37874

(615)365-4414

ERT INVESTIGATION REPORT

PAGE 1 OF 3

CONCERN NOS. IN-85-445-002, IN-85-458-007, EX-85-003-003

CONCERN: Welding Engineer (WE) in Welding Engineering Unit (WEU) at WBNP received no discipline after being caught in unauthorized access of the Weld Monitoring Information System (WMIS) computer utilizing a Welding Quality Control Inspector's (WQCI) confidential access code.

INVESTIGATION

PERFORMED BY: Charles Wilson

DETAILS

CONCERN NO. IN-85-445-002

CONCERN: An incident was expressed in which unauthorized access to the weld information management system was gained by an individual (name known) by use of another department individual (name known) access code. CI alleged that the individual used this unauthorized access to change the status of welding hold points and non-destructive inspections from incomplete to complete, without the work having been performed. CI alleged that TVA took no disciplinary action against the offending individual.

CONCERN NO. IN-85-458-007

CONCERN: Quality concern related to a Welding Engineer changing weld status records using someone else's access code was reported to manager (name given) and no corrective action was taken.

CONCERN NO. EX-85-003-003

CONCERN: Unauthorized access by an individual into the weld information management system, with subsequent unauthorized alteration of weld records, offending individual did not receive disciplinary action as required by TVA policy. Names and dates of occurrences are known, as well as confidential supporting documentation for concern.

PERSONNEL CONTACTED: (CONFIDENTIAL)

8604090180 860403
PDR ADOCK 05000259
P PDR

CONCERN NOS. IN-85-445-002, IN-85-458-007, EX-85-003-003

DETAILS, continued

DOCUMENTS REVIEWED:

Personnel File of WE

SUMMARY OF INVESTIGATION:

This concern is substantiated.

The WE warned SE-5's within the WEU against violating the security of a TVA information system prior to being caught in the act of unauthorized access to the WMIS. Two days after the WE's unauthorized access was discovered, the WEU supervisor wrote a letter of commendation for the unauthorized access activity. The WE was favored by the WEU supervisor instead of being disciplined.

FINDINGS:

The WE admits he was "counseled" on the violation for unauthorized access to the WMIS computer, although he claims no specific policy on that violation was in effect.

Interviews identified that the WE had cautioned SE-5s within WEU (in a meeting held on 12-13-83) that the unauthorized entry into TVA information systems was strictly prohibited and constituted a group C violation. This was said to require suspension as a discipline for such employee conduct. The WE was in a position of preaching a "do as I say, not as I do" sermon.

On 4/15/84, the WE was "counseled" by his unit supervisor for his conduct in the unauthorized access activity. The unit supervisor then wrote a commendation letter (dated 4/17/84) for the WE's unauthorized access activity. This management conduct is the real concern, i.e., the preferential treatment by the TVA management of the WE who breached the computer security of the WMIS. Subordinates in WQC and WEU are aware of this occurrence and expressed their beliefs that they would have been severely disciplined had they been caught doing the same thing. Instead of receiving any serious discipline, the WE has been promoted. These individuals provided further information regarding this WE accessing the WMIS, stating that he simply performed clean-up of computer information which was nothing more than clerical duties. The WE allegedly makes a practice of performing clerical duties on overtime while ordering subordinates to refrain from doing the same.

CONCERN NOS. IN-85-445-002, IN-85-458-007, EX-85-003-003

DETAILS, continued

FINDINGS, continued

The perception exists among some employees in WEU and WQC, that this WE was favored by the unit supervisor with promotion rather than discipline because of a friendship or clique.

OBSERVATIONS: None

CONCLUSIONS:

This concern is substantiated. This conclusion is based on the following:

1. The welding engineer did access the WMIS in an unauthorized manner.
2. The welding engineer received no disciplinary action.

PREPARED BY: Charles L. Wilcox 3/20/86
DATE

REVIEWED BY: O. H. News 3/20/86
DATE

FINAL

REQUEST FOR REPORTABILITY EVALUATION

EX-85-003-003

1. Request No. IN-85-458-007, IN-85-445-002 _____
(ERT Concern No.) (ID No., if reported)

2. Identification of Item Involved: _____
(Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)

Quality concern related to a welding engineer changing weld status records
using someone else's access code was reported to manager and no corrective action
was taken.

4. Reason for Reportability: (Use supplemental sheets if necessary)

A. This design or construction deficiency, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant.

No Yes _____ If Yes, Explain: _____

AND

B. This deficiency represents a significant breakdown in any portion of the quality assurance program conducted in accordance with the requirements of Appendix B.

No Yes _____ If Yes, Explain: _____

OR

C. This deficiency represents a significant deficiency in final design as approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report or construction permit.

No Yes _____ If Yes, Explain: _____

OR

REQUEST FOR REPORTABILITY EVALUATION

D. This deficiency represents a significant deficiency in construction of or significant damage to a structure, system or component which will require extensive evaluation, extensive redesign, or extensive repair to meet the criteria and bases stated in the safety analysis report or construction permit or to otherwise establish the adequacy of the structure, system, or component to perform its intended safety function.

No Yes _____ If Yes, Explain: _____

OR

E. This deficiency represents a significant deviation from the performance specifications which will require extensive evaluation, extensive redesign, or extensive repair to establish the adequacy of the structure, system, or component to perform its intended safety function.

No Yes _____ If Yes, Explain: _____

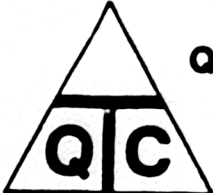
IF ITEM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CARRY THIS REQUEST AND SUPPORTING DOCUMENTATION TO NSRS.

This Condition was Identified by: Charles C. Wilby 365-4489
ERT Investigator Phone Ext.

O. J. Thies 365-4464
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

Signed _____ Date _____ Time _____



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ERT INVESTIGATION REPORT

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CONCERN NO. XX-85-002-001

CONCERN: Procedures at Browns Ferry not being followed by management. Specifically, Procedures Standard Practice 5.5 and RCI 1 which state "all employees within a section receive approximately the same exposure dosages." One worker has received high dosage within specified limits while others with the same job title have received no dose.

INVESTIGATION

PERFORMED BY: K. A. Whittlesey
G. T. Pohlmann
W. M. Kemp, Jr.

DETAILS

PERSONNEL CONTACTED: (CONFIDENTIAL)

CONCERN NO. XX-85-002-001

DETAILS, continued

DOCUMENTS REVIEWED:

1. Standard Practice BF 5.5, "Maintaining Occupational Radiation Exposure As Low As Reasonably Achievable (ALARA)" including revisions through 10/3/84.
2. Permanent Instruction RCI-1, "Health Physics Program" including Revisions through 3/15/85.
3. 10CFR Part 20
4. Procedure No. 0202.12, Rev. 0, May 6, 1985, "Health Physics Training Procedure".
5. Procedure No. 0202.05, Rev. March 15, 1985, "Nuclear Plant Operator Training Procedure."

SUMMARY OF INVESTIGATION:

The concern is substantiated. Distribution of exposure among employees having the same job title is biased by informal practices which tend to propagate disparity in occupational exposure doses. The Browns Ferry Health Physics and ALARA procedures both task section supervisors with distribution of work within radiologically controlled areas to equalize exposure of individuals and work crews to the extent practical. Although the degree of variation considered "normal" or "acceptable" is not quantified, trends exhibited by exposure records of Assistant Unit Operators indicate insufficient consideration of the effect of work assignment on dose equalization.

FINDINGS:

I. INTRODUCTION

The concerned individual (CI) clarified the nature and extent of the concern and indicated that the operations and perhaps health physics sections were affected. Additionally, the CI indicated a grievance letter alleging uneven distribution of radiological exposure among Assistant Unit Operators (AUOs) had been previously denied as having no basis. The disposition of the grievance letter was purportedly based upon a comparison which showed average exposures for "day shift" and "on shift" AUOs

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

I. INTRODUCTION, continued

were approximately equal. The CI indicated that, rather than variation between the average exposures of the two groups ("on shift" and "day shift"), the concern stems from the variation within the groups. The scope of the concern is limited to occupational exposure within administrative and regulatory limits. The CI expressed the belief that the variation in occupational exposure of AUOs is a violation of both BF RCI-1, "Health Physics Program", and BF-5.5, "Maintaining Occupational Radiation Exposures As Low As Reasonably Achievable (ALARA)", which require that doses to individuals and work crews in a section be relatively uniform.

ERT investigator at the Browns Ferry Nuclear Plant (BFNP) included a review of: applicable procedures; job descriptions; 1984 and 1985 exposure records for health physics and operations section personnel; and interviews with selected personnel.

At the initiation of this investigation, BFN Unit 1 was down for refueling and equipment modifications. Unit 2 was in a refueling outage with fuel off-loaded, and Unit 3 was down with technical problems.

II. REVIEW OF REQUIREMENTS

In addition to compliance with the specific requirements, 10CFR20 requires persons engaged in activities under licenses issued by the Nuclear Regulatory Commission to make every reasonable effort to maintain radiation exposures "as low as reasonably achievable" (ALARA). ALARA is further defined in Part 20 as "taking into account the state of technology, and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest." Browns Ferry Nuclear Plant Standard Practice BF 5.5, is the implementing procedure for the ALARA concept at Browns Ferry. The procedure states in part:

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

II. REVIEW OF REQUIREMENTS, continued

- o Once each week during non-outage periods and twice a week during refueling outages, each section supervisor will be sent a copy of the exposure listing of personnel assigned to the respective section. It shall be the responsibility of the supervisor to review the dose to the individuals in his section for the purpose of distributing work assignments in radiologically controlled areas in such a manner as to keep the dose to individuals and work crews relatively uniform.
- o Electrical and Mechanical Maintenance, Operations, Instrumentation, Engineering, Modifications Manager, Health Physics and Quality Engineering Supervisors (who have personnel required in radiological areas) distribute work assignments in radiologically controlled areas to keep the dose to individuals and work crews within the section relatively uniform, where practicable.

RCI-1, "Health Physics Program", reiterates the Nuc Pr commitment to operate and maintain all TVA nuclear plants so that radiation exposures and releases of radioactivity are kept ALARA. Section II.B, Administrative Exposure Guidelines, states that "work assignments shall be made to equalize exposure of plant personnel as much as practical without causing substantial increases in total overall exposure for employees".

During the investigation particular emphasis was directed to those working as AUOs although health physics technicians were included in the scope.

III. REVIEW OF EXPOSURE RECORDS

ERT investigators contacted the designated BFNP site representative with the specific concerns information in an effort to allow BFNP personnel the opportunity to prepare information in advance of ERT's arrival on site. Despite advance request for procedures RCI-1 and BF 5.5 and quarterly exposure records for operations and health physics section employees, the exposure records were not available for ERT review upon arrival.

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

III. REVIEW OF EXPOSURE RECORDS, continued

ERT obtained from the compliance staff copies of Instruction Number BF 5.5 and Standard Practice RCI-1. ERT investigators again requested the occupational exposure received by operations and health physics department personnel by section and quarter for 1984 and 1985, but were advised that the information may not be available in the format requested as there is no requirement to maintain it that way. ERT also requested individual job title/assignments for each section member. On June 10, 1985, ERT was provided copies of current quarter computer printouts summarizing current quarter and year to date exposure for operations and health physics personnel and informed that section summaries in the same format for 1984 may be available. ERT was provided, for review, a total alphabetical listing of BFNP year ending 1984 exposure data and schedules for operations and health physics personnel in addition to the current section exposure summaries. By June 12, 1985, the additional exposure records requested had not been located. ERT investigators were assured that the needed exposure data would be assembled and forwarded to the ERT offices at the Watts Bar Nuclear Plant (WBNP) site.

A cursory review of the section summaries identified that approximately 21% of AUO's had no occupational exposure for year to date 1985, while one had exposure in excess of one rem during the same time frame.

On August 20, 1985, the requested 1984 and 1985 section details were received. However, comparison of the year end 1984 data received with some year end totals extracted onsite from the total alphabetical listing of year end 1984 exposure evidenced significant variation in recorded values. ERT contacted BFN dosimetry to discuss the variation and confirmed that there was a discrepancy in the exposure data which had been provided. After notification, BFN dosimetry made arrangements for amended printouts to be delivered to ERT the same day. Subsequent to receipt of corrected tabulation of section exposure data, ERT began a detailed review of distribution and trends.

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

III. REVIEW OF EXPOSURE RECORDS, continued

The tabulated section occupational exposure data listings for year end 1984 and first two quarters of 1985 include all employees assigned organizationally to the sections. Not all personnel in a particular section have job descriptions which would entail occupational exposure to radiation. Additionally, certain jobs place the individual in radiologically controlled areas (RCA) on a regular or routine basis while others would only involve limited or occasional entry into RCAs. ERT was unable to determine exact job titles/assignments of all personnel in the sections, and could not account for title/status changes during 1984 and 1985, but was able to establish some trends.

Within the operations section, the position of Assistant Unit Operator includes job functions with associated routine occupational exposure expectations.

Review of 1984 and 1985 exposure data for AUOs (based upon section schedule assignments as well as employee interviews) identified the following:

1. The arithmetic mean exposure for AUOs is low (less than 100 millirem per quarter)
2. No exposure in excess of established site administrative or regulatory limits was noted.
3. A repetitive pattern of zero exposure for some AUO's.
4. Individual AUOs consistently receive highest exposures.

Low average individual and cumulative group exposures identified by review of 1984 and 1985 AUO exposure data indicate a knowledge and application of ALARA principles in planning and execution of duties. Records also indicate a concentration of AUOs with very low or zero exposure. Further review identifies a repetitive pattern of zero exposure among AUOs assigned temporary positions which remove them from the plant for the duration of the job. Exposure records indicate and employee interviews confirm that the duration of these temporary assignments is undefined. Those special projects assignments having zero associated exposure are generally day shift positions in either the office or training center.

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

III. REVIEW OF EXPOSURE RECORDS, continued

Also evident is the sparse distribution of AUO's at the upper end of the scale. Those individuals receiving the greatest occupational exposure also do so on a repetitive basis and are generally assigned special project duties. Those AUOs with exposures more closely approximating the median are generally "on shift" AUOs who rotate weekly through the various posts. While these patterns indicate that consideration of dose equalization is not universally applied to AUOs at Browns Ferry, practices resulting in dose equalization are employed by individuals within smaller work groups (such as those assigned to radwaste) and result in localized equalization.

ERT investigators performed a cursory review and comparison of contract and permanent plant health physics personnel section exposure data. Average exposure received and number of Radiation Work Permit (RWP) hours worked by contract technicians generally exceeded exposures and RWP hours of permanent plant technicians.

In further review of health physics technician exposure trends, ERT considered only the exposure data of permanent technicians.

Exposure data for the permanent plant health physics staff was reviewed for exposure trends and distribution. Elimination from the review scope of individuals not expected to receive routine exposure (such as known managerial and secretarial personnel) was conducted such that the exposure trends and distribution among the health physics technicians (permanent plant staff) could be examined. Note that, as in the operations section, ERT could neither discern the job title/assignments of every individual section member nor account for movement/promotions within the section. It is, however, evident that the exposure patterns for health physics technicians did not exhibit the repetitive pattern of highest exposures or the concentration at the zero exposure level seen among AUOs. Additionally, a direct correlation between special project assignments and repeated zero and highest exposures was not evident among the technicians, although the concept of special project assignments is employed to some limited extent within the section.

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

IV. PERSONNEL INTERVIEWS

On June 10, 1985, ERT investigators met with BFNP Operations Supervisor to discuss a grievance letter regarding exposure distribution within the section as well as the general subject of work assignment within the section. Review of the grievance letter signed by 23 operations section personnel and the closure letter signed by the operations supervisor identified that the grievance was denied as having no basis. Although the exact measures taken to reach the "no basis" decision were not known, the section supervisor indicated it was his understanding that a review had shown no significant difference between the average exposures of "on shift" and "day shift" AUOs. He voiced the belief that the grievance letter had probably stemmed from a perception that the "day shift" AUOs had a lower average exposure than "on shift" AUOs, and may have originated because "on shift" AUOs wanted day shift jobs. Asked how special work assignments are made within the operations section, the supervisor responded that the best person is selected for the job. Special projects or post positions which AUOs may fill include, but are not limited to training, procedures, paperwork, walkdowns, radwaste, and refueling. Certain of these assignments, such as training and procedures, essentially remove an individual from the plant for the duration of the assignment or post, while others, such as refueling floor and radwaste posts, would typically entail higher than average exposures. Posts such as radwaste and refueling floor are not rotated weekly because of additional proficiency and expertise necessary for the safest and most efficient conduct of these functions although all AUOs receive training in these areas. Regarding consideration of personnel exposure, the operations supervisor stated that he receives a copy of the exposure listing of personnel assigned to his section and is aware of current exposure levels. It was explained that one AUO with a markedly higher exposure than others has been working a special project assignment as well as voluntary overtime both of which contribute to an exposure consistently higher than others with the same job title. The operations supervisor indicated that the individual performing these activities had superior knowledge of the plant and was, therefore, the best person for the job. Other AUOs exhibiting zero exposure in either 1984 or 1985 were described as working special projects in either the office or training center.

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

IV. PERSONNEL INTERVIEWS, continued

ERT investigators met with the BFNP Health Physics Supervisor who provided examples of the section exposure summaries which are distributed to section supervisors as required by BF 5.5. The ALARA philosophy was discussed briefly and it was stated that there is a concerted effort at BFNP to minimize collective annual occupational exposure to radiation, BFNP employees are instructed regarding the ALARA concept and its implementation, and that there is a strong individual as well as programmatic commitment to the ALARA goals.

Health physics (permanent plant staff) and operations employees were selected for interview and some additional personnel and career ladder information was requested.

Operations section personnel described posts as "job slots" and characterized them as position description activities [i.e., reactor building, turbine building, or log watches (by unit)]. There are various plant areas and functions as delineated in the AUO position description for which an AUO may be assigned responsibility. AUO's rotate alphabetically through these job description slots on a weekly basis. In addition, there are special project position assignments of AUO's including the following:

- Office Support
- Instructors
- Procedures
- Radwaste disposal
- Daily logs - clerical
- Review of hold orders/paperwork
- Lesson plan writers
- Systems walkdown

These special projects are day shift assignments and are filled through an informal selection process within the section. Special projects positions are generally posted such that those interested may submit a TVA form 45 expressing their interest in filling the position however, there are no strict requirements which must be followed in selecting an individual. Personnel indicated that although the special projects are supposed to be temporary assignments, the duration is virtually undefined and historically has been long term.

CONCERN NO. XX-85-002-001

DETAILS, continued

FINDINGS, continued

IV. PERSONNEL INTERVIEWS, continued

Interviews with Health Physics personnel indicated that the same concept of informal special projects assignment utilized in the operations section is not a common practice within the Health Physics Section (Permanent Plant Staff). Routine health physics responsibilities for all three units are assigned to plant lab technicians (permanent TVA employees) while most special jobs are assigned to outage lab technicians (contract employees). The permanent plant staff would normally perform surveys and job coverage activities in support of operating units. During the simultaneous and prolonged outage of all three units, the Plant Lab has responsibility for Unit 3 and Outage Lab has responsibility for Units 1 and 2. A review of exposure records indicates that the occupational exposure of contract technicians at BFNP generally exceeds that received by permanent plant technicians.

CONCLUSIONS

The concern is substantiated. Within the operations section, job assignments of AUOs do not reflect consideration of dose equalization based upon the following:

1. AUOs receiving no occupational exposure to radiation are working outside typical AUO job description activities on special projects assignments.
2. AUOs with consistently highest occupational exposures are working special projects such as walkdowns, radwaste, and/or refueling floor rather than rotating through AUO job slots.
3. On shift AUOs rotating posts weekly have occupational exposures more nearly approximating the median exposure for AUOs as a group.

CONCERN NO. XX-85-002-001

DETAILS, continued

CONCLUSIONS, continued

The result is that some AUOs are removed from the plant for prolonged periods of time and receive zero occupational exposure while others receive the highest section exposures on a repetitive basis. This is contrary to portions of Standard Practice BF 5.5 and RCI-1 which direct that job assignments shall be made such that exposures to individuals and work crews be relatively uniform.

PREPARED BY:

Stawicki

3/18/86

DATE

REVIEWED BY:

D.A. [unclear]

3/20/86

DATE

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. XX-85-002-001 (ERT Concern No.) (ID No., if reported)
2. Identification of Item Involved: Uneven Dose Distribution at Browns Ferry
(Nomenclature, system, manuf., SN, Model, etc.)
3. Description of Problem (Attach related documents, photos, sketches, etc.)

50.55e Not applicable to operating plant concern. Concern not reportable as LER.

4. Reason for Reportability: (Use supplemental sheets if necessary)
- A. This design or construction deficiency, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant.

No N/A Yes _____ If Yes, Explain: _____

- AND
- B. This deficiency represents a significant breakdown in any portion of the quality assurance program conducted in accordance with the requirements of Appendix B.

No N/A Yes _____ If Yes, Explain: _____

- OR
- C. This deficiency represents a significant deficiency in final design as approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report or construction permit.

No N/A Yes _____ If Yes, Explain: _____

OR

INVESTIGATION REPORTS PREPARED BY NUCLEAR SAFETY REVIEW STAFF
AND NOT REVIEWED BY THE EMPLOYEE CONCERN TASK GROUP (ECTG)

NSRS REPORT NUMBER:

IN-85-864-002

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : W. T. Cottle, Site Director, Watts Bar Nuclear Plant ONP
FROM : R. G. Domer, Manager of Project Engineering, W12 A5 C-K
DATE : MAR 24 1986

SUBJECT: WATTS BAR NUCLEAR PLANT - NUCLEAR SAFETY REVIEW STAFF (NSRS) INVESTIGATION REPORT IN-85-338-WBN (EMPLOYEE CONCERN NUMBER IN-85-864-002)

Reference: Your memorandum to G. Wadewitz and J. C. Standifer dated February 14, 1986

RPD

| | | | |
|---|------|--------|-------|
| WATTS BAR NUCLEAR PLANT SITE DIRECTOR'S OFFICE | | | |
| MAR 25 '86 | | | |
| | NOTE | ACTION | REPLY |
| Mr. May | | | |
| Mr. King | | | |
| Mr. Smith | | | |
| Mr. Taylor | | | |
| Mr. Jones | | | |
| Mr. White | | | |
| Mr. Brown | | | |
| Mr. Green | | | |
| Mr. Black | | | |
| Mr. Gray | | | |
| Mr. Blue | | | |
| Mr. Red | | | |
| Mr. Purple | | | |
| Mr. Yellow | | | |
| Mr. Pink | | | |
| Mr. Orange | | | |
| Mr. Silver | | | |
| Mr. Gold | | | |

The subject report has been reviewed by Watts Bar Engineering Project. The NSRS findings and analysis of the concerns are accurate and acceptable.

Our comments to the recommendations are as follows:

Recommendation I-85-338-WBN-01

OE originally committed to revise the standard drawings to more clearly define the requirement that Raychem type N heat shrinkable products be used for all Class 1E cable splices and equipment terminations. See memorandum to G. Wadewitz from J. W. Coan dated September 6, 1985 (B26 850909 017). The standard drawings listed in this memorandum were issued on December 2, 1985. In response to a request from ONP to make this requirement less restrictive, OE has reconsidered the use of Raychem in harsh and mild environments. A memorandum from J. C. Standifer to D. W. Wilson dated February 4, 1986 (B43 860210 906) provided interim instructions and stated that "appropriate changes to the electrical standard drawings will be made by April 15, 1986, to allow the use of Scotch 23, 33+, and 70 tapes for splicing/terminating Class 1E equipment in mild environment areas as specified by the latest revision of the respective project environmental drawings". After further discussion with ONP concerning the need to use Raychem on category C devices, OE has established the following position:

Raychem type N heat shrinkable products shall be used to insulate all splices and terminations in harsh environments for Class 1E category A and B equipment (NUREG 0588 Appendix E) and certain non-Class 1E equipment whose failure due to postulated environmental conditions could prevent the satisfactory accomplishment of safety functions by safety-related equipment.

For category C equipment in harsh environments and mild environment equipment, Scotch 23, 33+, and 70 tapes may be used unless the maximum non-accident (normal/abnormal) environmental conditions exceed the tape manufacturer's specified environmental limits. In that case,

OE02-1769C
 WBEP 3/20/86



W. T. Cottle

MAR 24 1986

**WATTS BAR NUCLEAR PLANT - NUCLEAR SAFETY REVIEW STAFF (NSRS)
INVESTIGATION REPORT IN-85-338-WBN (EMPLOYEE CONCERN NUMBER
IN-85-864-002)**

Raychem type N materials shall be used also. General Construction Specification G-38 and the standard drawings will be revised by June 16, 1986, to reflect these requirements. For Watts Bar the environmental drawings are also being revised with an expected issue date of April 1, 1986. The temperature, radiation, and humidity limits for the Scotch tapes will also be indicated on the next revision of the standard drawings.

Recommendation I-85-338-WBN-02

Other than the drawings referred to in item 1, no other design drawings are affected.

Recommendation I-85-338-WBN-03

NCRs 6208 and 6224 dealt with terminations to equipment in harsh environments and in the resulting initial corrective actions OE committed to provide OC with a list of equipment in harsh environments. OE did provide the Watts Bar Equipment List (WBEL) of Class 1E equipment in harsh environments in the memorandum from J. W. Coan to G. Wadewitz dated September 13, 1985 (B26 850913 027). The subject motors, 1-MTR-74-10 (RHR Pump 1A-A) and 1-MTR-74-20 (RHR Pump 1B-B), are on this list.

In order to implement the requirements of the position stated above, the list required will be derived from the 10CFR50.49 list data base. Printouts are available which list category A, B and C devices in harsh environments. This information will be available when the Equipment Qualification Project (EQP) has completed it's review of WBN equipment qualification. This is presently scheduled for about July 15, 1986, for Unit 1 and about November 15, 1986, for Unit 2.

There is no list available for the mild environment equipment requiring Raychem products. This must be derived by ONP for Unit 1 and OC for Unit 2 by comparing the limits of the tape with environmental condition of the respective areas and applying Raychem to all devices in those areas where the tape cannot be used.

Recommendation I-85-338-WBN-04

This item will be completed as part of the corrective action for NCRs 6208 and 6224. Per telecon with Al Smith, ONP Mechanical Maintenance, on February 24, 1986, the motors are being replaced. Afterwards, they will be reterminated with the required qualified material.

OE02-1769C
WBEP 3/20/86

W. T. Cottle

WATTS BAR NUCLEAR PLANT - NUCLEAR SAFETY REVIEW STAFF (NSRS)
INVESTIGATION REPORT IN-85-338-WBN (EMPLOYEE CONCERN NUMBER
IN-85-864-002)

DATE 4 1986

Recommendation I-85-338-WBN-05

The root cause of NCRs 6208 and 6224 states that the standard drawings refer to harsh environments, and the drawings defining the environments were not issued until August 26, 1983. Also it is stated that the environmental drawings are somewhat ambiguous and, therefore, Construction personnel may have misinterpreted the requirements of the drawings. As noted in item 1, G-38 and the standard drawings will be revised and issued by June 16, 1986, to more clearly indicate the application of Raychem and the application of 3M Scotch tapes in harsh and mild environments. In the revisions to G-38, the standard drawings and the environmental drawings mentioned above, every attempt will be made to remove all ambiguity. If in the future, additional clarification is needed for particular equipment terminations, additional project detail drawings will be developed as required.



R. G. Domer

JCS:WAL:CTE

cc: J. C. Standifer, P-104 SB-K
G. Wadewitz, WBN OC (3)
W. A. Lambert, 2-143 SB-K
W. D. Hall, W12 C62 C-K

OE02-1769C
WBEP 03/17/86

W. T. Cottle

MAR 24 1986

WATTS BAR NUCLEAR PLANT - NUCLEAR SAFETY REVIEW STAFF (NSRS)
INVESTIGATION REPORT IN-85-338-WBN (EMPLOYEE CONCERN NUMBER
IN-85-864-002)

Raychem type N materials shall be used also. General Construction Specification G-38 and the standard drawings will be revised by June 16, 1986, to reflect these requirements. For Watts Bar the environmental drawings are also being revised with an expected issue date of April 1, 1986. The temperature, radiation, and humidity limits for the Scotch tapes will also be indicated on the next revision of the standard drawings.

Recommendation I-85-338-WBN-02

Other than the drawings referred to in item 1, no other design drawings are affected.

Recommendation I-85-338-WBN-03

NCRs 6208 and 6224 dealt with terminations to equipment in harsh environments and in the resulting initial corrective actions OE committed to provide OC with a list of equipment in harsh environments. OE did provide the Watts Bar Equipment List (WBEL) of Class 1E equipment in harsh environments in the memorandum from J. W. Coan to G. Wadewitz dated September 13, 1985 (B26 850913 027). The subject motors, 1-MTR-74-10 (RHR Pump 1A-A) and 1-MTR-74-20 (RHR Pump 1B-B), are on this list.

In order to implement the requirements of the position stated above, the list required will be derived from the 10CFR50.49 list data base. Printouts are available which list category A, B and C devices in harsh environments. This information will be available when the Equipment Qualification Project (EQP) has completed it's review of WBN equipment qualification. This is presently scheduled for about July 15, 1986, for Unit 1 and about November 15, 1986, for Unit 2.

There is no list available for the mild environment equipment requiring Raychem products. This must be derived by ONP for Unit 1 and OC for Unit 2 by comparing the limits of the tape with environmental condition of the respective areas and applying Raychem to all devices in those areas where the tape cannot be used.

Recommendation I-85-338-WBN-04

This item will be completed as part of the corrective action for NCRs 6208 and 6224. Per telecon with Al Smith, ONP Mechanical Maintenance, on February 24, 1986, the motors are being replaced. Afterwards, they will be reterminated with the required qualified material.

OE02-1769C
WBEP 3/20/86

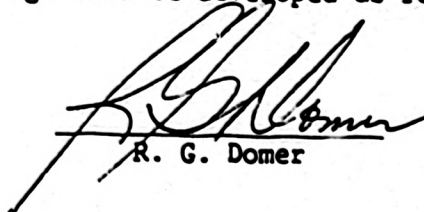
W. T. Cottle

WATTS BAR NUCLEAR PLANT - NUCLEAR SAFETY REVIEW STAFF (NSRS)
INVESTIGATION REPORT IN-85-338-WBN (EMPLOYEE CONCERN NUMBER
IN-85-864-002)

DATE 4 1986

Recommendation I-85-338-WBN-05

The root cause of NCRs 6208 and 6224 states that the standard drawings refer to harsh environments, and the drawings defining the environments were not issued until August 26, 1983. Also it is stated that the environmental drawings are somewhat ambiguous and, therefore, Construction personnel may have misinterpreted the requirements of the drawings. As noted in item 1, G-38 and the standard drawings will be revised and issued by June 16, 1986, to more clearly indicate the application of Raychem and the application of 3M Scotch tapes in harsh and mild environments. In the revisions to G-38, the standard drawings and the environmental drawings mentioned above, every attempt will be made to remove all ambiguity. If in the future, additional clarification is needed for particular equipment terminations, additional project detail drawings will be developed as required.



R. G. Domer

JCS:WAL:CTE

cc: J. C. Standifer, P-104 SB-K
G. Wadewitz, WBN OC (3)
W. A. Lambert, 2-143 SB-K
W. D. Hall, W12 C62 C-K

OE02-1769C
WBEP 03/17/86

RESPONSES TO INVESTIGATION REPORTS SUBMITTED BY LINE ORGANIZATIONS AND
NOT YET REVIEWED FOR ACCEPTABILITY

RESPONSES TO CONCERN NUMBERS:

IN-85-012-001

IN-85-284-001

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

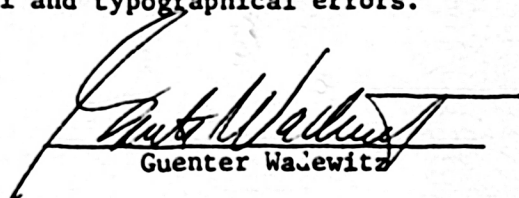
TO : R. P. Denise, Program Manager, Watts Bar Employee Concern Task Group
Watts Bar Nuclear Plant ONP

FROM : Guenter Wadewitz, Project Manager, Watts Bar Nuclear Plant OC

DATE : March 28, 1986

SUBJECT: WATTS BAR NUCLEAR PLANT - REQUEST FOR INVESTIGATION/EVALUATION

Attached is our response to employee concern No. IN-85-012-001 which has been corrected for clerical and typographical errors.


Guenter Wadewitz

COC:JM
QERT.CR
Attachment



RESPONSE

NSRS Report No. IN-85-012-001

Subject: ASTM MATERIAL SPECIFICATIONS

Concern No: IN-85-012-001

Corrected For Clarity

March 21, 1986

Employee Concern No. IN-85-012-001

Response to NSRS RecommendationsRecommendation

Q-85-012-001-01 - Review of Specific Material Upgrade CMTRs - Review the specific CMTRs, upgrade sheets, receiving reports, and weld history records associated with the material noted on the attachment to this investigation and the NCRs referenced in the investigation. Take appropriate action to correct the discrepancies and documentation.

Response

All CMTRs, upgrade sheets, available receiving reports and weld history records (NDE Reports) associated with this concern were investigated. The results of the investigation are addressed in responses to findings 3 through 21 and notes 1 through 51.

Recommendations

Q-85-012-001-02 - Review of Additional Material Upgrade CMTRs - Review a random sample of additional upgrade CMTRs to verify that the upgrading was accomplished per procedure. Report results of this review in response to this investigation.

Response

Ten additional CMTRs for heat numbers that were upgraded upon receipt but not included in attachment 2 of 2 were investigated. Listed below are the heat numbers investigated:

1. 6LDO - 4", sch 80 45 Ell, SA 234 WBP
2. W3600 - 4", LR 90 Ell, std, SA 234 WBP
3. L448 - 2", 3000# Tee, A350-LF/SA 350-LF
4. BJ73 - 1 1/2", 3000# Union nut, A105/SA105
5. BK60 - 1 1/2", 3000# Union, male, A105/SA105
6. BH82 - 1 1/2", 3000# Union, female, A105/SA105
7. L04582 - 2", sch 40 pipe, A106/SA106
8. HE6252 - 1", sch 40 pipe, A106/SA106 Gr.B
9. HA5699 - 1 1/4", sch 40 pipe, A106/SA106 Gr.B
10. JA1252 - 1", sch 40 pipe, A106/SA106 Gr B

All 10 items meet material requirement in accordance with ASME Code Section II.

Recommendation

Q-85-012-001-03 - Review of Material Control Instructions - Review the material control procedure currently in effect to verify that it contains provisions to prevent recurrence of the receipt, storage, and upgrade discrepancies identified during this investigation. Justify acceptance of previous methods and documentation of upgrading.

Response

Material control procedures currently in effect are: (1) Quality Assurance Manual for ASME Section III Nuclear Power Plant Components (NCM), Section 3.7, "Material Control and Identification" and Section 3.8 "Material Certification and Supply," (2) WBN-Quality Control Instruction 1.46 , Material Upgrading, (3) WBN-Quality Control Procedure 1.06, "Receipt Inspection of Safety-Related Items," WBN-Quality control instruction 1.36, "Storage and Housekeeping," (4) WBN-Quality Control Procedure 1.50, "Material Verification and Validation," and (5) General Construction Specification G-62, "Material Documentation and and Acceptability Requirement for ASME Section III Applications." These procedures were reviewed as part of the investigation performed and found to contain provisions to prevent recurrence of receipt, storage and upgrading discrepancies identified in this report. Acceptance of previous methods of upgrading are addressed in the NCM manual, Section 3.8.

Recommendation

Q-85-012-001-04 - Revision of FSAR - Revise the FSAR to include all applicable code cases utilized in material upgrading.

Response

Revision to FSAR is not required. See response to findings 1 and 2.

Response to Summary of Investigation

- * Material receipt inspectors and engineers upgraded ASTM materials to ASME Section III, Class 1, 2 or 3 based on chemical and physical properties and tests for the applicable material as described in Section II of the ASME Code. Additional NDE, if required, was performed by the manufacturer/supplier and verified by the construction organization or performed by the construction organization. The methods used to upgrade the material by the construction organization varied due to procedures describing the upgrade process not being issued at that time.
- * The Nuclear Components Manual, Section 3.8 was revised on August 2, 1984, to incorporate material upgrades previously performed at WBN. The methods used to upgrade the material were evaluated by Office of Engineering (OE) and the Authorized Inspection Agency prior to the revision.
- * Materials certified to a later Code Edition and Addenda of ASME Section III are in accordance with Construction Specification G-62 and/or ASME Code Interpretations III - 81-48, date issued May, 12, 1981.
- * WBN material upgrade processes and vendor material certifications found to be inadequate were previously identified by NCRs now closed or/are presently being identified by NCRs.
- * NCRs that were closed with the NDE reports not included are being identified in NCR 6687.

Analysis Reports.

Responses to Findings

Findings

1. Section III ASME Cases N-242 and N-242-1 as approved in NRC Regulatory Guide 1.85 specifically refer to Section NCA-3800 (NA-3700) of the ASME Code for Winter 1973 Addenda and later editions. The Code of Records for WBN is 1971 Edition through 1973 Summer Addenda for construction installation of ASME Code Classes 1, 2, 3, MC and CS components. Code Cases N-242 and N-242-1 are not required for WBN when materials for the project were procured prior to April 10, 1980. The code cases may be used as described in the Quality Assurance Manual (NCM), Section 3.8, revision 6, "Material Certification and Supply." NCR 2968R, R6, dated November 2, 1983, was generated to identify ASTM A-240 TP 304 stainless steel plate that was machined into a pressure retaining transition insert installed within an ASME Section III Class 1 boundary. The NCR was forwarded from the site to OE for approval of corrective action. The corrective action returned to the site from OE referenced code case N-242-1 and also stated that NDE would be required. Subsection NB-2250 of the ASME Code lists the NDE requirements that apply to the transition spool piece identified on NCR 2968R, R6. A liquid penetrant examination on all external surfaces is one method of satisfying Class 1 requirements. This examination was performed and documented on NDE Report number 66440 by a certified NDE Level II inspector. The transition spool piece identified on NCR 2968R has been inspected in accordance with all applicable requirements to the ASME Code of Records for WBN.
2. The FSAR for WBN lists code cases N-1423-1 and N-1423-2. Both Code Cases apply to the Reactor Coolant system. The Code Cases are technically identical with differences being only cosmetic.
3. (A) NCR 2968R, R6, uniquely identifies the transition spool piece by having weld numbers 1-062B-T179-01 and 2 recorded by the initiator. These weld numbers were assigned by site engineering to document the installation of the transition spool piece. The weld history record for weld number 1-062B-T179-02 lists the heat number (855675) as recorded by the weld inspector.

The correction method item on the NCR 2968R lists the requirement to satisfy ASME Code Class 1 for material installation to the Code of Records at WBN. OE concurred with the recommended correction method described on the NCR.

- (B) Code Case N-242-1 referenced on OE response (NEB 831201 252) to NCR 2968R, R6 identifies information used during their research. The additional NDE required by the response was a function to be performed by the site.
- (C) The NDE performed on the transition spool piece was based on requirements stated in Article 2000, sub-paragraph ND-2550 for the ASME Code of Records for WBN. This sub-paragraph was referenced

on the OE response (NEB 831201 252) as applicable to the function of the finished product.

4. (A) The stainless steel pipe, heat number M3579, SA376 TP 304, size 1/2" was installed in unit 2 as a temporary item. The stainless steel pipe will remain installed until all flushing operations related to the installation are complete. The pipe will be removed and replaced with the permanent transition spool piece prior to the ASME Code Section III pressure test being performed.
- (B) The stainless steel pipe installed in Unit 2 does not meet ASME Section III, Article NC-2000 because its function is temporary. Therefore, the requirements stated in Article NC-2000 do not apply.
- (C) (i) The site systems engineer is primarily responsible for installing and tracking temporary items for ASME Section III systems. In this case, as described in 4. (c), the temporary status of the stainless pipe was noted on weld installation documentation. First level tests 23A and 17A for segment number 2-062-RB-P-809-1-014G will not be requested by site engineering until the temporary pipe is removed and the permanent transition spool piece is installed. Also, the N-5 Unit was aware of the condition and is tracking it internally.
- (ii) Justification for ASME Code Class 1 installation was not required for the pipe because of the temporary installation. There were two factors to consider for the installation, industrial safety and weld compatibility. The industrial safety factor was satisfied with the installation of size 1/2" pipe. The weld compatibility factor was satisfied by documenting the welding of the pipe in accordance with site quality assurance procedure WBN-QCI-4.03.
5. The cover sheet and data sheet 1 for ECN 4486 lists NCR 2986, R6 and NCR 2968 R6. The numbers "2986" were transposed by the writer of the sheets and do not apply to ECN 4486. An informal memorandum was generated to clarify the transposition and forwarded to RUMS to be included with ECN 4486.
6. (A) Based on correction method approved by OE (NEB830207/2700), the heat number did not require correction on the pipe. Final verification has determined that no identification is on the pipe due to its short length. The weld operation sheets for weld numbers 2-070A-T262-3 and 2-070A-T263-3 now reference NCR 4363, R0. Copies of these weld operation sheets have been forwarded to RUMS to be included into the records microfilming system.
- (B) WBN-QCI-1.46, R0 was issued on January 19, 1984. NCR 4363, R0 was closed on March 1, 1983. The upgrade in question could not be performed to WBN-QCI-1.46 because it was not issued prior to closing the NCR. However, OE Construction Specification C-62, Appendix B, Table B.2 allows the use of ASME Section III, 1974 Edition through 1976 Winter Addenda for use at WBN.

- (C) The Certified Mill Test Report for heat number 102M2007 states "2500# OK" in the hydro test column. The Certificate of Compliance supplied by Capitol Pipe for the heat number states in part...All test results and operations performed are in compliance with Articles NA-3700 and NC-2550 for Class 2 material.
7. (A) NCR 4312, RO was inadvertently closed with six pieces of material not being upgraded. Research has determined that heat number 04930, SA 376 TP304, Sch. 160, 3/4" NPS was installed in system 68 (Reactor Coolant) and was not addressed on the NCR. All six locations are on weld map SK. 465-1 SH. 1-1. All 3/4" material for heat number 04930 installed in system 62 (CVCS) was upgraded prior to closure of NCR 4312, RO. The material is not installed in any other unit 1 ASME Class 1 systems. NCR 6687, RO dated February 25, 1986, items 1 through 12 identify material by weld number and location not included on NCR 4312 RO.
- (B) Capitol Pipe supplied the site a copy of the nondestructive examination report for a 20 ft. length of ASME Class 1 pipe with heat number 04930 (RIMS number W850116K0062). The NDE was performed by Law Engineering Testing Company.
- (C) 10 CFR21 does not apply, due to ASME Code Class 1 test reports being supplied by Capitol Pipe for the material (RIMS W850116K0062).
8. ASME Code materials supplied to WBN accompanied with Certified Mill Test Reports and Certificates of Compliance for editions and addenda other than the Code of Records have been evaluated by OE for acceptance. Construction Specification G-62, Appendix B, table B.1 issued by OE contains a listing of materials that were not supplied to the Code of Records for WBN but are acceptable for use. Table B.1 lists acceptable ASME Code Edition and Addenda issued prior to and subsequent to the Code of Records for WBN. Site engineering and quality control units are jointly responsible for ensuring material installed in ASME Code systems are acceptable in accordance with Construction Specification G-62, Appendix B, table B.1 when the material was not supplied to the Code of Records for the site.
9. A total of 14 heat numbers listed on attachment A are associated with materials upgrade to ASME Section III Code classification by the materials QC receipt inspectors or site engineers. The Certified Mill Test Reports for these 14 heat numbers were reviewed for compliance with ASME material specifications and Code classifications for the Code of Records at WBN. The materials for the 14 heat numbers were found acceptable based on information recorded on the Certified Mill Test Reports supplied with the material. The justification for the upgrading of material at time of receipt was for allowance of the material to be installed in ASME Code Section III systems if needed.
10. Procurement documentation received from various suppliers is accepted by TVA based on information recorded on the document and the supplier being QA approved by TVA. Certified Mill Test Reports and

Certificates of Compliance stating acceptable chemical analysis, physical tests, pressure tests, etc. are considered valid for ASME Code application when the information stated on the documents is in compliance with ASME Code Section III requirements for the respective code class. In the past, verifications of these material documents being in compliance with Section III requirements were performed at receipt inspection by site engineering in accordance with WBN-QIP-1.06. OE issued documents including Construction Specifications G-62 and ASME Section III Quality Assurance Manual, Section 3.3 "Material Certification and Supply" are also used to evaluate the material for acceptability.

11. (A) Nonconforming Reports 4531R, RO, and 4532R, RO identify the bill of material as the item being in nonconformance. The welded connections used to install the transition pieces did not require addressing due to the scope of both NCRs being limited to the bill of materials.
 - (B) The adequacy of the installed materials was evaluated by OE prior to their approval of the recommended disposition (SW850230040) for both NCRs.
 - (C) The root cause of the material installation for both NCRs was not addressed due to procedural requirements. WBN-QCI-1.02 requires the root cause of nonconforming conditions to be given when the NCR is evaluated as being a significant condition adverse to quality. Nonconforming reports 4531R, RO and 4532R, RO were marked not significant in item 3A.
 - (D) An informal memorandum was issued on October 22, 1985 (W851016K0498) addressing the typographical error shown on NCR 4532R, RO, item 1A. The memorandum was forwarded to RUMS and combined with the NCR.
12. (A) Extensive research has been performed on Dravo contract 740381-83015 to determine if any material with heat number HH-772 was supplied to WBN. No evidence exists to indicate that material was supplied to the site with this heat number. Research indicated the Certified Mill Test Report for heat number HH-772 was inadvertently supplied by the Dravo Corporation. The current heat number/heat code log does not list an ASME class for the material because the Certified Mill Test Report does not state any ASME classification and no upgrade documentation generated by TWA personnel was located.
 - (B) Heat number HH-772 was not upgraded to ASME Section III because no evidence was found to indicate material for the heat number was received at WBN.
 - (C) See (A) and (B) above.
 - (D) The date entered by the quality control representative or notary public is considered as the year of manufacturing for the material. The quality control representatives or notary public signature is adjacent to this date along with the statement in

part "we certify this report to be true and correct."

(E) See (A) and (B) above.

13. (A) (1) The scope of NCR 2968R varied considerably from the date of initiation February 7, 1981 revision 0 to the date of closure January 5, 1984 for revision 6. The scope of the NCR ranges from including various systems in units 1 and 2 on revision 1 to identifying only one item on revision 6. Due to these variations between revisions it cannot be determined by documentation that each item for each revision was inspected in accordance with all of OE instructions. Reference OE memorandums (NEB821221294), (NEB831201252), (NEB830421285) and (NEB830324286). In researching documentation associated with NCR 2968R, R1 through 6, it was determined that all NDE documentation could not be accounted for. NCR 6687, R0 dated February 25, 1986 identifies material by heat number and installation location for NDE documents missing on NCR 2968, R1 through 6. Specifically, NCR 6687 R0, items 16 through 114, 171 through 178 and 312 through 403 identify the items for the missing NDE documents. NCR 4567R, R0 and 1 applied to unit 1, system 62 and NDE documents are included for all accessible material. Item 1A, para B, (1) (A) lists subassembly 1-62-S-17.2, welds 12 and 10. Weld 10 is listed incorrectly and should be weld 13 as shown on weld map SK406-8, SH.2. and is included in the NCR. Inaccessible materials are noted on NDE reports and drawing attachments to the NCR.

OE memorandum (NEB821221294) for NCR 2968R, R2 and 3 states in part...Review and verify that the quality assurance programs in place at WBN now and in the past required segregation of material by class in the warehouse, the transfer to the craft hold area, and the hold area itself...A review of the QA procedures for material storage and housekeeping (WBN-QCI-1.36 and QCP-1.36) do not require segregation of all types, e.g., pipe, fitting, etc. of ASME Section III material. The material was stored in designated areas and controlled in accordance with procedural requirements.

- (2) In discussions with cognizant construction personnel involved with handling ASME Code material at the time NCR 2968R, R0 through 6 was open, it was determined that a significant condition did not exist. The material storage and handling procedures in effect at the time were considered adequate. NCR 4567R, R0 and R1 were evaluated as not being significant because only system 62 was involved. However, NCR 5087, R2 was evaluated as being significant and generic.
- (B) The alleged conflict identified in the latter part of this paragraph is the wording by OE. Memorandum (NEB821221294) states in part...MT or PT examination of all external surfaces and accessible internal surfaces...Memorandum (NEB 83 0324 286) states in part...The material will require examination as detailed in the NCR. If the liquid penetrant examination option is elected, the internal surfaces of these 2-inch and smaller pipe and fittings

are not accessible for liquid penetrant examination. All materials referenced on NCRs 2968R, R2 and 3 and 4567R, R0 and R1 are 2 inch and smaller. The meaning and intent of both responses are technically identical.

- (B) (i) The quality of the materials identified on NCRs 2968R, R0 through 6 and 4567R, R0 and R1 was based on review of applicable Certified Mill Test Reports and associated documents supplied by the vendors. Any material requirement violations that occurred have been documented in accordance with WBN-QCI-1.02 "Control Of Nonconforming Items."
- (ii) OE memorandum (NEB821221294) states in part...for the code of record applying to WBN (1971 Edition, up to and including the Summer 73 Addenda), wrought seamless and welded (without filler metal) tubular products and fittings, including flanges and fittings machined from forgings and bars, shall be examined by one of the following methods for Class 1 applications:
1. UT examination of the entire volume of metal in the product.
 2. Eddy-current examination of the entire volume of metal in the product.
 3. MT or PT examination of all external surfaces and accessible internal surfaces.
 4. RT examination of the entire volume of metal in the product.

The option elected for use by Construction was the liquid penetrant examination.

- (C) Item 1A, para B, (1) (A) lists subassembly 1-62-S-77-2, welds 12 and 10. Weld 10 is listed incorrectly and should be weld 13 as shown on weld map SK406-8, SH.2. Welds 1-062B-T169-10, 11 and 12 were addressed on NCR 2968, R2 item 1A, para 3. NDE report number 50214 documents the liquid penetrant examination of the 3/4 inch tee between welds 10, 11 and 12.
- (D) The Arc strikes observed between welds 1-062B-T163-17 and 18 by the construction inspector were identified on NDE report number 50808. The material with the arc-strikes on the outside surface was in a nonconforming status at the time the arc-strikes were identified. The NDE performed by the inspector on entire piece with the arc-strikes satisfied the requirements to upgrade the material to Class 1. An arc-strike removal form for this piece was not located during the response investigation.
- (E) (i) Justification used as corrective action for NCR 2968R, R2 was not documented other than the signing of item 7 on the NCR. Systematically, procedural revisions and addendas require engineering and quality control personnel to review all applicable QA procedures as they are updated. Familiarity with procedures is satisfied in part by this method. It appears that WBN-QCP-4.10-17, R0 was issued on September 2, 1981 as a result of material identification problems. Also WBNP-QCP-1.50, R0 was issued on April 5, 1982 for material

WBNP-QCP-1.50, RO was issued on April 5, 1982 for material verification and validation requirements.

- (ii) See (i) above
 - (iii) The heat number verifications performed during the time period NCR 2968R, RO through R6 were performed by quality control units. WBN-QCP-4.10-17, para 5.2 states in part...The inspectors performs, insures and documents the verifications for the material. Site engineering did not perform material verification. WBN-QCP-1.50 also lists requirement for material verification and validation by QC inspectors.
 - (iv) The final material verifications prior to installation for ASME Section III were performed by mechanical and welding quality control inspectors. These verifications were accomplished by a review of Certified Mill Test Reports, Certificate of Compliance, the existing heat number/heat code printout, DCU personnel and documents located in warehouse. The verification of heat number/heat code was accomplished by comparing the heat number/heat code on the item with one of the above methods.
 - (v) WBN-QCP-1.50 and WBN-QCP-4.10-17 were issued after NCR 2968R, RO and were in effect prior to closing NCR 2968R, R6.
- (F) (i) System 74 was not included in NCR 2968R, R3, R4 and R5 due to the materials for the heat numbers identified not being installed in the system. System 87 was not included in the description of the NCR by weld number or subassembly. However the NCR includes NDE sheets for all applicable heat numbers installed in system 87.
- (ii) Research has determined that NDE report number 49916 identifies all locations of heat number 459025 installed in system 87.
 - (iii) The heat numbers identified on NCR 2968R, RO through R6 are not installed in system 74, (RHR) class 1 boundary. Therefore a partial closure for the system was not required.
 - (iv) After research of NCR 2968R, RO through R6 including attachments it was determined that NDE reports were missing for 9 pieces of material for system 62 (CVCS). These 9 pieces of material have been identified on NCR 6687 dated February 25, 1986. Item numbers 173, 377, 376, 379, 316 through 324 on the NCR identify this material.
- (G) (i) The Certificate of Compliance supplied by Capital Pipe (W850404L0951) states in part...Material is in compliance with ASME Section III, Class 2....
- (ii) A review of all attachments to NCR 2968R, RO through R6 revealed NDE report number 56278 addresses subassembly 1-68-S-1-3 and heat number B6698 as being upgraded to Class 1

requirements.

(iii) A review of all Class 1 material installed in unit 1 and 2 has determined that heat number B6698 was installed in only one location as identified in (ii) above. The material is acceptable for ASME Section III Class 2 and 3 application without additional NDE required.

(H) (i) NCR 2968R, R0 item G, para 1 identifies 18 inserts with heat number AAZ as being located in the warehouse. No evidence exists to indicate that all of the material was upgraded at the warehouse. NDE Report 56733 documents 12 - 2"x3/4" inserts being PT examined but no heat number for the material is recorded on the NDE report. The NCR number is listed by the inspector on the NDE Report. The 18 inserts were installed in unit 2 in a Class 1 boundary. These inserts were identified March 21, 1985 on NCR 5087, R2, page 4 of 144, items 1 through 13, 526 and 528 through 531.

(J) (i) See (H) (i) above

(J) (ii) See (H) (i) above

(K) (i) See (F) (i) above

(ii) The partial release to NCR 2968R, R2 issued on January 1, 1983 did not include all Class 1 subassemblies in system 62 as indicated. NCR 2968R, R4 contains a partial release dated May 6, 1983 for system 62. This partial release was issued to include the additional material for system 62 identified as a result of revision 4 being generated. An in-depth review of NCR 2968R, R0 through R6 has revealed that partial releases were issued and not all NDE reports can be located to support releases for system 62. NCR 6687 dated February 25, 1986 identifies all material for system 62 not included on NDE reports for NCR 2968R, R0 through R6. A partial release to NCR 2968R, R2 was issued on January 31, 1983 for all of unit 1, system 68. After review of all NDE reports associated with NCR 2968R, R0 through R6 it was determined that enough NDE reports were not included to support the partial release of the NCR for system 68. The material for the missing NDE reports is identified on NCR 6687 dated 2-25-86. Item numbers on the NCR for the material are 16 through 76, 171, 172, 312 through 315 and 326 through 376.

(L) (i) At the time of material review classification for system 68 it could not be determined that the insert met ASME Section III Class 1 requirements. For this reason the insert was PT examined and documented on NDE report number 50217.

(ii) Weld numbers 1-068A-T015-25 and 26 are recorded on NDE report number 50217. A review of the weld documents determined the heat number to be DBR as recorded.

(iii) The heat number recorded on the documents for welds 1-068A-

T015-25 and 26 allow traceability to the Certified Mill Test Reports for the material. Review of all Unit 1, Class 1 material installed has identified any material in question for ASME Section III, Class 1 installation. NCR 6687 dated February 25, 1986 items 691 through 714, 754 and 805 identify any remaining areas of concern for heat number DBR installed in unit 1, Class 1 systems.

14. (i) A total of 5 material certification documents—CMTRs and COCs, (W8540417K0377, W850417K0375 and 376 frames 1 and 2 and W850116K0400) were located. Four of the 5 documents states in part...Material supplied meet ASME Section III, Class 2 requirements. The 1 CMTR that did not state an ASME class for the material was classified/ upgraded on January 30, 1985 (W850514K0695). This classification/upgrade was included in NCR 5925 RO. OE response to the disposition of the NCR (NEB 85 0225 259) concurred with the classification/ upgrading recommendation. The classification/upgrade sheet attached to NCR 5925, RO in conjunction with the statements on the remaining 4 material documents ensures all material with heat number K551 meets ASME Section III, Class 2 requirements.
- (ii) NCR 5925, RO was identified as not being a significant condition adverse to quality. Therefore, measures taken to prevent recurrence were not required to be documented on the NCR.
15. (i) The reference to 1974 Edition, Winter 1976 Addenda was entered on the upgrade report (WBN-QCI-1.46, attachment A) based on the signature date shown on the Certified Mill Test Report (W850425L0307). Construction Specification G-62, Appendix B, Table B.1 allows this edition and addenda for acceptance to the Code of Records for WBN.
- (ii) The correct procedural requirements were followed for upgrading all material with heat number HH773. All items with this heat number were upgraded to allow use of the material in other ASME Section III, Class 2 boundaries. It is not a requirement that each item be accounted for prior to upgrading the material
16. See 14. (i) and 15. (ii) above
17. (i) A copy of NCR 5087, R2 was forwarded to OE (NEB Codes, Standards and Materials section) as described in item 8 and 16 of the NCR. The distribution provide OE the opportunity to review and comment on the NCR. Also, verbal communication between the initiator of the NCR and the OE took place. The review of the correction method stated on the NCR was acceptable to OE.
- (ii) NCR 5087, R2 identified each item in question by installation location. The requirements for the material were to classify/upgrade only what had been installed in ASME Section III, Class 1 boundaries. The requirements for Class 1

material acceptability were satisfied independent of the purchase order, TVA form 209, etc.

- (iii) NCR 5087, R2, item 3, page 3 of 144, para 2, requires physical verification of each piece of material in order to identify any material listed that does not have unique traceability to an ASME Section III, Class 1 CMTR or TVA generated upgrade form.
 - (iv) WBN-QCP-1.50 describes the method of heat number/heat code verification performed at WBN. Methods described in the procedure are verification of material class by Certified Mill Test Reports and the current heat number/heat code tag. All quality control and engineering units associated with material receipt and installation are certified to WBN-QCP-1.50.
18. The quality manager at WBN has delegated the responsibility of signing material upgrade forms to his staff members. Circulation of all upgrade forms require the approval of the quality manager or one of his designees.
19. (i) The material was upgraded on June 13, 1980 for use in ASME Section III Class 2 installations. A reference to additional documents is not required for the material to be upgraded. TVA Certificate of Authorization (N-1480-1) allows the site to upgrade the material identified in this item.
- (ii) The date of the upgrade memorandum (W850410K0051) for the material is June 13, 1980. The Quality Assurance Manual for ASME Section III Nuclear Plant Components (NCM), Section 3.3, para 1.(1).b allows this method of upgrading for the material based on the date the upgrade was performed.
- (iii) TVA Form 209 number 75-6675 is stamped on the upgrade memorandum. The Certified Mill Test Reports supplied for the 209 states a quantity of 250. The total quantity of material with heat number "ES" was upgraded on the memorandum dated June 13, 1980 (W850410K0051).
- (iv) The Certified Mill Test Report issued by Alloy Stainless Products Company (W850410K0051) states in part...Conforming spec: ASTM A182 F304, dated April 3, 1975. According to Construction Specification G-62, Appendix B, Table F.1 ASTM A182 material manufactured to the 1975 ASTM specification is acceptable for use at WBN. Specification of heat treatment is not required on CMTRs.
- (v) The receipt inspection procedure (WBN-QCP-1.06) that contains the receipt inspection checklist was not issued at the time this material was received.
20. The receiving inspection checklists for heat numbers M222J, ZK2BJ and YB2GJ have been corrected to agree with the CMTRs supplied with the material. The corrected checklists have:

been forwarded to RIMS to be included into the records microfilming system. The heat numbers will be included into the heat number program during the microfilming process.

21. The receiving inspection checklist for material received on TVA Form 209 number 76-4757 was not located during the investigation research of this item. However 4 Certified Mill Test Reports (W850410K0085, W850405L0118, W850503K0225 and W850410K0086) were located for the material with heat number "EY." Three of the CMTRs states material meets ASME Section III, Class 1 requirements. The remaining CMTR states the material meets ASME Section III, Class 2 requirements. Any of this material installed in an ASME Code Section III, Class 1 system has been identified on NCR 2968R, R2 through R5, NCR 5087, R2 and NCR 6687 R0. NDE Report number 57147 list heat number "EY-1." The -1 was added by TVA personnel to distinguish the material as ASME Code Section III Class 1. NCR 2968R was referenced on the NDE Report to identify the reason for upgrading the material.

Response to Attachments 1 of 2 and 2 of 2.

Listed below are responses for the notes numbered on attachment 2 of 2. The number for the response notes correspond to the number of the investigation report notes.

1. No comment
2. No comment
3. One item was received at WBN with heat number E38H. The location of the item was hut 9 at the warehouse. The item has been removed from hut 9 and is identified as surplus material to be sold or scrapped.
4. No comment
5. The physical properties for heat numbers ENZB, ECDW AND EOKI as stated on the Certified Mill Test Reports agree with requirements stated in the SA-105 specification 1974 Edition.
6. NO comment
7. CMTRs/COCs supplied with material lists acceptable heat treatment data.
8. Not required
9. No comment
10. Not listed in notes or remarks columns on attachment 1 of 2.
11. Not required
12. NDE required only on Class 1 for these heat numbers. CMTRs for Class 1 state in part...Meets ASME Section III, Class 1.
13. Not listed in notes or remarks columns on attachment 1 of 2.
14. Not listed in notes or remarks columns on attachment 1 of 2.
15. The COC supplied with the material states in part...Meets ASME Section I, Class 2 specifications. The Section III specification for SA-376 requires hydro by the manufacturer.
16. An entry is recorded in the hydro pressure test column on each CMTR indicating an acceptable pressure test was performed.
17. Not listed in notes or remarks columns on attachment 1 of 2.
18. Heat number 46H was manufactured to one specification only (A-105-71).
19. Material was supplied with CMTR stating SA specification or was upgrade to ASME Section III, Class 2 after receipt.
20. All material received with ASTM and ASME certifications have been/will be classified/ upgraded if installed in an ASME Code Section III, Class 1, 2 or 3 system.
21. The date of signature by the quality assurance representative or notary public on the material document is considered the year of manufacturing.
22. See Construction Specification G-62, Appendix B, Table B.1
23. No comment
24. (a) Not required - Performed by supplier or manufacturer.

- (b) Not required - Performed by supplier or manufacturer.
 - (c) Not required - Performed by supplier or manufacturer.
 - (d) Not required - Performed by supplier or manufacturer.
 - (e) Not required - Performed by supplier or manufacturer.
 - (f) Not required - Performed by supplier or manufacturer.
 - (g) Not required - Performed by supplier or manufacturer.
 - (h) Certified as Class 1 on CMTR
 - (i) Not required
 - (j) See Construction Specification G-62, Appendix B, Table
25. Material is traceable to the contract to which it was procured based on information recorded on the CMTRs/COCs.
 26. Justification for upgrade of the material upon receipt was possible installation in an ASME Code system.
 27. Receiving inspection checklists have been corrected to agree with TVA Form 209s.
 28. See response to Findings No. 20 page 13 of 18.
 29. Not listed in notes or remarks columns on attachment 1 of 2.
 30. See Construction Specification G-62, Appendix B, Table B.1.
 31. CMTR upgrade reports have been corrected and forwarded to RIMS to be included into the records microfilming system.
 32. Not required
 33. Quantity of material received on site is recorded on TVA Forms 209 for the material.
 34. Not required on material documents.
 35. Material has not been confirmed as meeting ASME Section III, Class 1, 2 or 3 requirements. When this is determined, the class will be entered in the heat log.
 36. The classification in the heat code program is in agreement with the CMTRs, COCs, upgrade report and 209s for the heat numbers.
 37. TVA Form 209 No. WBNP-76-4757 and CMTR for heat number EY are retrievable from DCU records vault and RIMS.
 38. The receiving inspection checklist and the CMTR agree on the quantity (6) supplied and received.
 39. See Response to Note 27 page 16 of 18.
 40. See Response to Note 27 page 16 of 18.
 41. The information required to complete the receiving inspection checklist is in accordance with WBN-QCP-1.06.
 42. Reference Construction Specification G-62, Appendix B, Table B.1 for additional acceptable editions and addendas.
 43. Justification for material upgrade was for use of the material in ASME Section III systems, if required.
 44. Vendor/manufacturer material documents indicate acceptable results of mechanical tests. These documents were evaluated prior to upgrade by TVA construction personnel.
 45. Not listed in notes or remarks columns on attachments 1 of 2.
 46. Comparison was performed on 4-9-81 (W850410K1077).
 47. Not required
 48. Not required. Coordinated with OE (CSM)
 49. Receiving inspection checklist not required to satisfy ASME Section III material requirements. TVA Form 209 No. WBNP-77-2048 lists the material as TVA Class H (B31.1).

50. Current heat number program was built on Certified Mill Test Reports, Certificates of Compliance, upgrade reports and TVA Form 209s. Receipt inspection checklist were not evaluated in building the current heat number program.
51. TVA certification memorandums were generated to upgrade only what may be installed in ASME Section III systems. All material did not require upgrading.

Summary and Conclusions

A response to the summary and conclusions of employee concern identified in this investigation is not provided due to each item listed in the report being individually addressed.

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

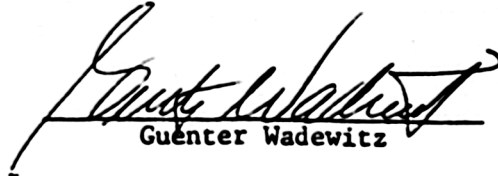
TO : R. P. Denise, Program Manager, Watts Bar Employee Concern Task Group
Watts Bar Nuclear Plant ONP

FROM : Guenter Wadewitz, Project Manager, Watts Bar Nuclear Plant OC

DATE : March 28, 1986

SUBJECT: WATTS BAR NUCLEAR PLANT - REQUEST FOR INVESTIGATION/EVALUATION

Attached is an amended response to employee concern No. IN-85-284-001.


Guenter Wadewitz

COC:JM
QERT.CR
Attachment



Employee Concern IN-85-284-001

CONCERN: The weld rods at Watts Bar may not be of sufficient quality.

RESPONSE: Please amend page 3 of subject response to read as follows:

Accountability of Airco E7018, 1/8", Lot #B222

39,900 pounds received 03-31-81 (Lot #B222 and B220)
-17,200 pounds shipped to CSP 10-15-81 (Lot #B222 and B220)
-11,750 pounds returned to Airco 11-20-81 (Lot #B222)
10,950 pounds consumed in process at WBN (Lot #B222 and B220)

In summary, the two problems identified, flux brittleness (Hobart) and eccentricity (Airco) were both investigated and resolved. Neither condition constituted an NCR condition, and in essence were problems with operability characteristics and operator appeal. As stated in the concern, WBN Construction has no documented complaints regarding McKay welding electrodes.

NEW K-FORMS RECEIVED BY THE EMPLOYEE CONCERN TASK GROUP AND NOT YET
ASSIGNED FOR INVESTIGATION

XX-85-027-X01 (PREVIOUSLY SUBMITTED 3-26-86 -
XX-85-027-011 - NUMBER
CHANGED PER QTC'S REQUEST)

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Employee Concerns Program

TRANSMITTAL NUMBER T50278

ERT has received the Employee concern identified below, and has assigned the indicated category and priority:

Priority: 4

Concern #*XX-85-027-~~011~~ ^{X01 agl 3-28-86}

Category: 86

Confidentiality: ___ YES ___ NO (I&H)

Supervisor Notified: ___ YES ___ NO NUCLEAR SAFETY RELATED _NO_

Concerns: SEQUOYAH: INAPPROPRIATE PERSONNEL CLASSIFICATIONS WERE MADE IN CONJUNCTION WITH A LAYOFF. THESE CHANGES ULTIMATELY HAD AN ADVERSE EFFECT UPON THE C/I. DETAILS KNOWN TO QTC, WITHHELD DUE TO CONFIDENTIALITY. NO FURTHER INFORMATION MAY BE RELEASED.

[Signature] 3/17/86

MANAGER, ERT DATE

ECP Task Group has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT -----

NSRS -----

OTHERS (SPECIFY) ~~ECP~~ OGC
agl 3-28-86

[Signature] 3/25/86

ECP Task Group DATE