75R

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50224

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

Priority: 1 Concern # OW-85-007-007

Category: 87 Confidentiality: NA_ YES NA_NO(I&H)

Supervisor Notified: ___YES _X_ NO NUCLEAR SAFETY RELATED YES_

Concern: Watts Bar is located on an earthquake fault that runs from Chattanooga to north of Knoxville. If there were to be an earthquake, the plant's structural integrity would be seriously damaged.

CI has no further information.

Construction Department Concern

earthquake fault

No follow up required.

Dirk Dreus 12/20/85 ~~12-11-85~~
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___V__ ~~GTROD~~ x2

OTHERS (SPECIFY)_____

Bruce L. Siegler 1/3/86
NSRS DATE

Design
Adequacy

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50224

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

Priority: 1 Concern # OW-85-007-008

Category: 52 Confidentiality: N/A YES N/A NO(I&H)

Supervisor Notified: ___YES _X_ NO NUCLEAR SAFETY RELATED YES_

Concern: Watts Bar has had too many instances of uncraftsman-like electrical work. including poorly bent and incompletely screwed together conduit (auxiliary Bldg). and cables damaged due to slag from welding operations overhead (Turbine Bldg, elev. 729'). No specific locations or Unit numbers know. Construction dept. concern. CI has no further information.

No follow up required.

[signature] 12/20/85 ~~12-11-85~~
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓__ SDS

OTHERS (SPECIFY) ____________________

Electrical Install

[signature] 1/3/86
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50225

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

Priority: 1 Concern # OW-85-007-009

Category: 52 Confidentiality: NA_ YES NA_NO(I&H)

Supervisor Notified: ___YES _X_ NO NUCLEAR SAFETY RELATED YES_

Concern: Stainless steel piping has been abased by having energized electrical cords and welding leads wrapped around them. An example is a straight horizontal run of 6" stainless steel pipe in Auxiliary bldg. which was wrapped with energized welding leads so that no one would take the welding leads.

The CI has no further information.

Construction department concern.

No follow up required.

[signature] 12-11-85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓__ JDS

OTHERS (SPECIFY) ____________________

Construction Control

[signature] 12/18/85
NSRS DATE

P5R

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50225

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

Priority: 1 Concern # OW-85-007-010

Category: 58 Confidentiality: NA_ YES NA_NO(I&H)

Supervisor Notified: ___YES ___ NO NUCLEAR SAFETY RELATED YES_

Concern: Electrical control cabinets have been contaminated by construction dirt and metal grindings. This contamination entered the panels through the cooling vents on the tops of the panels. This is a plant-wide problem, because of the heavy build-ups of dust and metal particles that have allowed to accumulate on top of equipment.

This could cause the contactors or other components to deteriorate and blow out or become inoperative. A specific location given is Aux. Bldg, 757' El unit not known.

CI has no further information.

Construction department concern.

No follow up required.

William A. [signature]

___________12-11-85_________
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓___ WTS

OTHERS (SPECIFY) ______________________________

Construction Control

[signature] 1/3/86
NSRS DATE

PJR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50227

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

Priority: 1 Concern # SQP-5-003-001

Category: 53 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH - ON THE EVENING OF 12-9-85, AN ELECTRICIAN OPERATED A VALVE IN THE UNIT 2 RHR HEAT EXCHANGER ROOM WITHOUT A UNIT OPERATOR PRESENT. THIS CAUSED A SPILL (UNKNOWN AMOUNT) OF WHAT THE CI DESCRIBED AS "REACTOR GRADE" (HIGHLY RADIOACTIVE) WATER INTO THE ROOM. THE SPILL WAS SECURED BY A HEALTH PHYSICS TECHNICIAN WHO HAPPENED TO BE IN THE AREA. CI STATED THAT IT WAS ALLEGED THAT A UNIT OPERATOR HAD TOLD THE ELECTRICIAN TO GO AND SEPARATE THE VALVE, AND THAT UNIT OPERATORS ARE NOT AUTHORIZED TO GIVE SUCH DIRECTIONS. CI COULD PROVIDE NO ESTIMATE OF AMOUNT OF RADIOACTIVITY RELEASED, AND STATED THAT "EVERYONE IS BEING REAL CLOSED MOUTHED ABOUT THIS THING". CI HAS NO FURTHER INFORMATION, AND IS ANONYMOUS.

O. K. Thero 12/20/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓__ RCS

OTHERS (SPECIFY) ______________________________

Operations Control

Bruce L. Siefken 1/3/86
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50227

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

Priority: 1 Concern # SQP-5-003-002

Category: 53 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH - CI EXPRESSED THAT MANAGEMENT/SUPERVISION HAVE AN ATTITUDE OF "HURRY UP AND GET THE JOB DONE" IN AN EFFORT TO GET THE PLANT ON LINE. CI FEELS THAT PROCEDURES ARE NOT BEING FOLLOWED IN AN EFFORT TO ACCOMPLISH WORK AS QUICKLY AS POSSIBLE. AND EVIDENCED THIS BY THE RADIOACTIVE WATER SPILL WHICH OCCURRED ON 12-9-85. AND ADDRESSED IN THIS FILE. CONCERN 001. CI HAS NO FURTHER INFORMATION. AND IS ANONYMOUS.

O. J. Kims 12/20/85
MANAGER. ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓___ RCS

OTHERS (SPECIFY) _____

QA effect

Bruce L. Griffin 1/3/86
NSRS DATE

Traveler   F5F

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS   TRANSMITTAL NUMBER T50227

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

Priority: 1   Concern # WBM-5-001-001

Category: 33   Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO   NUCLEAR SAFETY RELATED YES

Concern: WATTS BAR - THE GENERAL CONST. SPEC. G-29C. PROCESS SPEC. 0.C.1.1 IS IN CONFLICT WITH THE TVA QUALITY ASSURANCE COMMITMENTS AS STATED BY THE TVA TOPICAL REPORT. TVA-TR75-1A. IN THAT PROCESS SPEC. 0.C.1.1. SECTION 6.0 ALLOWS UNCERTIFIED WELDER FOREMEN. WHO HAVE DIRECT RESPONSIBILITY FOR THE INSTALLATION, TO PERFORM PREWELD INSPECTIONS. NUCLEAR POWER CONCERN. CI HAS NO FURTHER INFORMATON.

O. L. Thero   12/20/85
MANAGER, ERT   DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓___ ~~EGW~~ RHS RCS

OTHERS (SPECIFY) ______________________________

Welding Codes

Bruce L. Siefken   1/3/86
NSRS   DATE

Mauzik   PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS   TRANSMITTAL NUMBER T50027

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

Priority: 1   Concern # WBM-5-001-002

Category: 53   Confidentiality: _YES _NO (I&H)

Supervisor Notified: _X_YES ___NO   NUCLEAR SAFETY RELATED YES

Concern: SEQUOYAH - UNCERTIFIED WELDER FOREMEN ARE REQUIRED BY TVA TO PERFORM PREWELD INSPECTIONS ON INSTALLATIONS THEY ARE DIRECTLY RESPONSIBLE FOR WHICH IS A VIOLATION OF ANSI REQUIREMENTS. NUCLEAR POWER CONCERN. CI HAS NO FURTHER INFORMATION.

[signature] 12/20/85
MANAGER, ERT   DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___V__ RCS

OTHERS (SPECIFY) ____

welding
codes

[signature] 1/3/86
NSRS   DATE

9 May 16

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50227

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

Priority: 1 Concern # WBP-S-004-002

Category: 53 Confidentiality: _YES _NO (I&H)

Supervisor Notified: ___YES ___NO NUCLEAR SAFETY RELATED YES

Concern: MANAGEMENT EMPHASIZED QUANTITY OVER QUALITY TO THE POINT OF NOT ALLOWING INSPECTION PERSONNEL TO WRITE NCRs OR IRNs WHEN APPROPRIATE. PER CI, THIS ERODED THE INSPECTION PROCESS AND CUT INTO THE INTEGRITY OF THE INSPECTOR. TIME FRAME WAS GIVEN OF LATE 1982/EARLY 1983 FOR THIS CONCERN. NO HARDWARE SPECIFICS WERE PROVIDED BY CI. CI HAS NO FURTHER INFORMATION.

O. P. Thero 12/20/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ✓

NSRS/ERT _____

NSRS _____

OTHERS (SPECIFY) _____

QA effect

Bruce L. Griffin 1/3/86
NSRS DATE

PSC

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50222

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

Priority: 1 Concern # XX-85-122-046

Category: 47 Confidentiality: _YES _NO (I&H)

Supervisor Notified: __YES ___NO NUCLEAR SAFETY RELATED YES

Concern: BELLEFONTE - HANDLING OF EQUIPMENT IN STORAGE AND DURING AND AFTER CONSTRUCTION IS POOR. EQUIPMENT IN MANY CASES IS IN POOR CONDITION AND FILTHY DIRTY INSIDE AND OUTSIDE. ENVIRONMENTS AND FIRE PROTECTION FOR STORAGE IS INADEQUATE. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.

O.A. Pero 12/20/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation or the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓___ RCS

OTHERS (SPECIFY) _____

Potential Control

Bruce L. Leighton 1/3/86
NSRS DATE

PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50222

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

Priority: 1 Concern # XX-85-122-047

Category: 47 Confidentiality: _YES _NO (I&H)

Supervisor Notified: __YES ___NO NUCLEAR SAFETY RELATED YES

Concern: BROWN'S FERRY - HANDLING OF EQUIPMENT IN STORAGE AND DURING AND AFTER CONSTRUCTION IS POOR. EQUIPMENT IN MANY CASES IS IN POOR CONDITION AND FILTHY DIRTY INSIDE AND OUTSIDE. ENVIRONMENTS AND FIRE PROTECTION FOR STORAGE IS INADEQUATE. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN VIA LETTER.

O. D. Kent 12/20/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS ___✓___ RCS

OTHERS (SPECIFY) _____

material control

Bruce Lee
NSRS DATE

11 aug 16 PSR

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50222

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

Priority: 1 Concern # XX-85-122-050

Category: 53 Confidentiality: _YES _NO (I&H)

Supervisor Notified: __YES ___NO NUCLEAR SAFETY RELATED YES

Concern: BROWN'S FERRY - LACK OF GOOD STATUS SYSTEM (PUNCH LISTS) FOR COMPLETION OF COMMITMENTS AND COMPLETION OF NRC ACTIONS, AND COMPLETION OF WORK AT SITES. PLANT CONSTRUCTION, PRE-OP, ETC. STATUS IS POOR. CI HAS NO FURTHER INFORMATION. ANONYMOUS CONCERN.

[signature] 12/20/85
MANAGER, ERT DATE

NSRS has assigned responsibility for investigation of the above concern to:

ERT ___

NSRS/ERT _____

NSRS __✓__ RCS

OTHERS (SPECIFY) ________________________________

Operation
T.J

[signature] 1/3/86
NSRS DATE

TVA 38 (OS-9-85) (OP-WP-5-85)

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : S Schum, QTC/ERT Program Manager, Watts Bar Nuclear Plant

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

DATE : JAN 7 1986

SUBJECT: TRANSMITTAL OF ACCEPTED FINAL REPORTS

The following final reports have been reviewed and accepted by NSRS and are transmitted to you for preparation of employee responses.

EX-85-052-006 (I-85-669-WBN)
IN-85-410-006 (I-85-382-WBN)
IN-85-839-001 (I-85-287-WBN)
IN-85-852-001 (I-85-851-WBN)

K. W. Whitt

Please acknowledge receipt by signing below, copying and returning this form to J. T. Huffstetler, E3B37 C-K.

NAME _____ DATE _____

GDM
Attachments
cc (Attachments):
R. P. Denise, LP6N35A-C
E. R. Ennis, WBN
D. R. Nichols, E10A14C-K
Eric Sliger, LP6N48A-C
W. F. Willis, E12B16 C-K (4)

0242U

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-669-WBN

EMPLOYEE CONCERN EX-85-052-006

MILESTONE 6

SUBJECT: DISCREPANCY BETWEEN DRAWINGS AND CONDUIT INSTALLATIONS

DATES OF INVESTIGATION: December 2-10. 1985

INVESTIGATOR: G. R. Owens — Date: 1-6-86

REVIEWED BY: J. D. Smith — Date: 1-6-86

APPROVED BY: M. A. Harrison — Date: 1-6-86

I. BACKGROUND

Employee Concern EX-85-052-006 was received by the Quality Technology Company (QTC) Employee Response Team that stated: "Conduit is frequently torn out when it shows on the drawings as being in place and it is documented as being there."

Note: Further information received from QTC revealed that the concern resulted from a discrepancy observed between the installation of a conduit run and the design drawings on Unit 2. The conduit run was shown on the design drawings but was not installed as shown. An example given was the conduit to junction box 334 in Unit 2.

II. SCOPE

Interviews were conducted with cognizant personnel, and reviews of applicable procedures and design drawings were accomplished in order to evaluate the concern of record.

III. SUMMARY OF FINDINGS

A. Junction box (JB) 334 was shown on design drawings 45W876-2 R20 and -3 R15. Conduits 2T3709, 2T3710, 2T3711, and 2T3715 were shown entering this JB. Observation of JB 334 in the reactor building (Unit 2) revealed all conduits were routed to the box as shown on the drawings.

B. Based on established QC procedures, conduit can be authorized for removal (or installation) by an Engineering Change Notice (ECN) or Work Release (QCIs 1.09 and 1.07). There were no indications during this investigation that conduits were being removed or installed outside the approved procedures.

C. During the construction phase, the design drawings and the physical installation are expected to differ depending on various circumstances. For example, an ECN with revised drawings can be issued to install conduit; but depending on QC's priority of work, the installation may be delayed for some time. In another example, experience has shown that conduits frequently have to be relocated because of unforseen interferences. Based on personnel discussions, it may be several weeks between the time the existing conduits are removed and the rerouted conduits are installed.

D. As a part of the turnover process (as defined by QCI-1.22), the QC system engineer must ensure that the construction process has been completed and the drawings are "as constructed" to reflect the actual installation. Any discrepancies are itemized on a "punch list" for corrective action.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. The concern citing JB 334 and associated conduits as an example of design drawings and the physical installation being different could not be substantiated based on observation of the actual installation and review of the design drawings. However, during the construction phase, differences between the design drawings and the physical installations are expected and planned for by established procedures.

2. All remaining discrepancies between design drawings and the actual installation are identified during the turnover process and corrected. "As-constructed" drawings are identified as the as-installed configuration as a part of the turnover process.

B. Recommendations

None.

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-382-WBN

EMPLOYEE CONCERN IN-85-410-006

MILESTONE 3

SUBJECT: GROUPS NOT ADHERING TO PROCEDURES

DATES OF INVESTIGATION: September 30-December 18, 1985

INVESTIGATOR: John Croes ______ 1-6-86
J. L. Croes Date

REVIEWED BY: Jerry D. Smith ______ 1-6-86
J. D. Smith Date

APPROVED BY: for W. W. Stevens ______ 1-6-86
M. A. Harrison Date

I. BACKGROUND

A concern was received by Quality Technology Company (QTC) Employee Response Team that stated:

> The Nuclear Power, Nuclear Services, and M&A, etc. groups do not adhere to procedures: They do whatever is convenient: eg, (a) field services and maintenance department uses laborers to do concrete mason work. (b) a Nuclear Services employee was given a hanger removal permit (date known) that was not filled in with the specific location of each hanger to be removed (it said "remove hangers at various elevations and locations") This is contrary to QCI1.07. CI has no more information.

II. SCOPE

The concern was broken down into two parts. the first being the use of laborers to do concrete mason work and the second part removing hangers contrary to QCI-1.07.

III. SUMMARY OF FINDINGS

A. Applicable Documents

1. General Agreement Between the Tennessee Valley Authority and the Tennessee Valley Trades and Labor Council

2. TVA Division of Construction Jurisdictional Manual, Revised 1984

3. Quality Control Instruction QCI-1.07 Revision 11, "Work Release"

B. Findings

The first part of the concern deals with laborers performing concrete mason work. This is allowed and does occur in Nuclear Power, Modifications, Maintenance, or wherever work is being performed under the General Agreement between TVA and the Trades and Labor Council which states in Article VI: "After staffing an installation or job, TVA shall assign the work to those employees who in its judgement are qualified to safely and efficiently perform the work. Traditional craft jurisdictional lines are not observed."

The second part of the concern deals with hanger-removal permits that were not filled in with the specific location of each hanger to be removed. Twenty-nine work releases (used to remove hangers) were reviewed. Twenty-six of these were written to remove hangers for the upper head injection system on Unit 2. This work is being done on Work Package NA087A25 which implements Engineering Change Notice (ECN)-5549. This system is being deleted on Unit 2. The twenty-six work releases remove over 100 hangers. The Supervisor, Hanger Engineering Unit B, issued directions for removal of the hangers. The appropriate drawings for each hanger to be removed were attached to the appropriate work release. The drawings gave all the information requested on the work release to which it was attached.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The concern as written is true; however, the laborers are permitted to do concrete mason work per the General Agreement.

Twenty-six work releases have been written to remove hangers at various elevations and locations. All of the hangers being removed (approximately 100) were part of a system that is being permanently removed from Unit 2. All of the work releases had the appropriate drawings attached giving the location of each hanger to be removed.

Recommendations

None.

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-287-WBN

EMPLOYEE CONCERN IN-85-839-001

MILESTONE 6

SUBJECT: ERCW MOTOR PROBLEM

DATES OF INVESTIGATION: December 9-13. 1985

INVESTIGATOR: Frederick J. Slagle — F. J. Slagle — 1/6/86 — Date

REVIEWED BY: Jerry D. Smith — J. D. Smith — 1-6-86 — Date

APPROVED BY: M. A. Harrison — 1-6-86 — Date

I. The Nuclear Safety Review Staff (NSRS) investigated Employee Concern IN-85-839-001 which Quality Technology Company (QTC) had identified during the Watts Bar Employee Concern Program. The concern was worded as follows.

> TVA has not performed a proper engineering evaluation of the ERCW pump motor anti-reversing problem. It seems that the problem could be resolved through a circuit change.

Prior to the initiation of this investigation, an attempt was made through QTC to obtain additional information from the concerned individual. The concerned individual stated that TVA should remove the antireversing mechanism and modify the control circuit to alternate the motor-start sequence.

II. SCOPE

NSRS has contacted the personnel responsible for maintenance, repair, and operation of the ERCW pumps and motors and has reviewed applicable internal TVA documentation.

III. SUMMARY OF FINDINGS

The Formsprag clutch mechanisms were installed on all eight ERCW pump motors in January 1985. On July 2, 1985, Nuclear Power (NUC PR) asked the Office of Engineering (OE) to perform a design study to remove the ERCW pump motor antireversing mechanism. On July 26, 1985, OE responded with a cost estimate to perform this design study which was substantially higher than anticipated by NUC PR. The decision was then made by NUC PR to put the subject design study on hold based on the cost/benefit aspects of the design study and the good performance of the Formsprag clutch mechanisms. The Formsprag clutch mechanisms have experienced only one failure since installation. In this instance the mechanism operated as designed but was significantly overstressed and severely damaged. The corrective action to be implemented will be to replace the key holding the Formsprag clutch mechanism to the motor shaft with a key designed to shear prior to damage occuring to the clutch mechanism.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The Formsprag clutch machanisms have performed as designed, and the design study to evaluate removal of the ERCW pump motor antireversing mechanism was judged not to be cost effective by NUC PR. The employee concern was not substantiated.

Recommendations

None.

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-851-WBN

EMPLOYEE CONCERN IN-85-852-001

MILESTONE 6

SUBJECT: VENDOR WELD AT TANK BOTTOM

DATES OF INVESTIGATION: November 18-27. 1985

INVESTIGATOR: John C. Catlin SR
J. C. Catlin — Date: JAN 6, 1986

REVIEWED BY: Jerry D. Smith
J. D. Smith — Date: 1-6-86

APPROVED BY: M D Steven
M. A. Harrison — Date: 1-6-86

I. BACKGROUND

The Nuclear Safety Review Staff (NSRS) conducted an investigation to determine the validity of an employee concern received by Quality Technology Company (QTC) on July 22, 1985. The concern questioned the quality of vendor welds on the accumulator tank - Unit 2, accumulator tank room No. 1, elevation 716 ft. It stated: "Questionable weld is located in the center of the tank bottom - 10 inch stainless steel line outlet."

II. SCOPE

The scope of the investigation included identifying the tank, determination of the tank manufacturer, establishing and reviewing design and inspection requirements, review of reports of inspections conducted at the vendor's plant, and an attempt to inspect the bottom of the tank.

III. SUMMARY OF FINDINGS

A. Requirements and Commitments

1. Codes and Standards in effect at the time of tank fabrication:

   a. ASME Section III, 1971 Edition through 1973 Addenda

   b. ASME Section IX, 1971 Edition

   c. American Nuclear Society ANS N-18.2, 1970 Draft

   d. ASME Section V, "Nondestructive Examination"

2. Westinghouse requirements in effect at the time of tank fabrication:

   a. Equipment Specification 952426, Revision 1 with Corrections

   b. Equipment Specification 952130, Revision 2

   c. Westinghouse Drawing No. 1097E08, Sheets 1 and 2, Sub 5, Approved with Corrections 3/5/73

3. TVA procedures requirements effective at the time of tank installation:

   a. WB-DC-40-36, "Classification of Piping, Pumps, Valves, and Vessels"

   b. WBN-QCT-4.37, Revision 3, "Hydrostatic Testing"

B. Discussion

1. The accumulator tank is part of the Safety Injection System (SIS) which is TVA System 63. The SIS accumulator tanks were purchased as part of the Nuclear Steam Supply System (NSSS) through Westinghouse Nuclear Energy Systems Division of Pittsburgh, Pennsylvania, on TVA Contract 74C61-54114-1 from Delta Southern Company of Baton Rouge, Louisiana, on Westinghouse P. O. 546-CAS-182062-BN.

2. The tank was designed to be fabricated from carbon steel with a stainless steel buttered lining. The design included a 10-inch nozzle welded into the bottom of the tank. The nozzle weld prep was to be buttered, and a two-inch-long section of stainless steel was to be welded to the nozzle as a "safe end." The weld between the nozzle and the safe end was designed as a "dissimilar metals" weld.

C. Findings

1. The welds in question were part of a tank which has been identified as: Accumulator Tank 1350 ft^3, Manufacturer's Serial No. 33007-74-5, National Board No. 3552, Westinghouse Corporation P. O. No. 546-CAS-182062-BN, Item No. WBT-SIATAT-01.

2. This identification information was shown on the vessel nameplate, which also carried the manufacturer's N-Stamp.

3. According to TVA WB-DC-40-36, Table 3.2-2, the safety injection system accumulator tanks have been classified as TVA Safety Class B.

4. The weld between the lower head and the 10-inch nozzle had nondestructive examinations (NDE) specified as follows: magnetic powder test (MT) after first pass, MT after final pass, radiography (RT) of completed weld. The MT test reports were included with the vessel data package. The radiographic films were reviewed and accepted by Westinghouse and TVA inspectors. The radiographs are filed in vault storage at East Point, Georgia. The corresponding reader sheets are on file at TVA OE QEB.

5. The dissimilar metals weld between the 10-inch nozzle and the stainless steel safe end had NDE specified as follows: dye penetrant test (PT) after first pass, PT after final pass, and RT of the completed weld. The PT test reports were included with the vessel data package. The RT films were reviewed and accepted by Westinghouse and TVA inspectors. The radiographs are filed in vault storage at East Point, Georgia. The corresponding reader sheets are on file at TVA OE QEB.

6. Certified Material Test Reports (CMTR) for the entire vessel were available for review. The materials for the 10-inch nozzle and the stainless steel safe end complied with drawing and specification requirements.

7. The weld between the safe end and the 10-inch stainless steel elbow was a field weld.

8. Witness point for the hydrostatic test conducted at the vendor's works was waived by Westinghouse. The test was conducted and otherwise certified (see below).

9. A system hydrostatic test which included this tank was conducted at TVA. The system was pressurized in accordance with ASME Section III requirements and sealed off. There was no pressure drop in ten minutes.

10. With the equipment installed at the time of the investigation, the bottom of the tank was not accessible for visual inspection.

11. ASME Form N-1A, "Data Report for Nuclear Vessels," was issed by the vendor and certified by them on 3/13/74. The form was countersigned by an Authorized Nuclear Inspector (ANI) representing the Hartford Steam Boiler Insurance and Inspection Company on the same date. This form certified that the vessel had been manufactured in accordance with ASME Section III, 1971 Edition with Winter 1971 Addenda, that all weld seams had been 100 percent radiographed, and that the vessel had been hydrostatically tested at 1050 psi.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

1. The vessel referred to in the concern was built and tested to ASME Code requirements.

2. Any rework of any welds in this vessel would destroy the integrity of the ASME certification.

3. The objective evidence available did not support the allegation.

B. Recommendations

None.

TVA 64 (OS-9-85) (OP-WP-5-85)

UNITED STATES GOVERNMENT

Memorandum TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant

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

DATE : JAN 8 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. I-85-667-WBN

Subject INSTALLATION OF FIRE BARRIER ON CEILING BASE PLATES

Concern No. IN-85-008-002

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by February 4, 1986. Should you have any questions, please contact Gary R. Owens at telephone 3656-WBN.

Recommend Reportability Determination: Yes X No ____

Director, NSRS/Designee

GRO:GDM
Attachments
cc (Attachments):
R. P. Denise, LP6N35A-C
D. R. Nichols, E10A14 C-K
QTC/ERT, Watts Bar Nuclear Plant
E. K. Sliger, LP6N48A-C
W. F. Willis, E12B16 C-K (4)

--Copy and Return--

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

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. I-85-667-WBN Subject INSTALLATION OF FIRE BARRIER ON CEILING BASE PLATES for action/disposition.

_____ Signature _____ Date

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-66[illegible]-WBN

EMPLOYEE CONCERN IN-85-008-002

MILESTONE 3

SUBJECT: INSTALLATION OF FIRE BARRIER ON CEILING BASE PLATES

DATES OF INVESTIGATION: November 18-December 17, 1985

INVESTIGATOR: J. D. Smith for G. R. Owens — 1-6-86 Date

REVIEWED BY: Jerry D Smith J. D. Smith — 1-6-86 Date

APPROVED BY: for M. D. Stevens M. A. Harrison — 1-6-86 Date

I. BACKGROUND

Employee Concern IN-85-008-002 was received by the Quality Technology Company (QTC) Employee Response Team that stated:

> In fall of 1984, in auxiliary bldg. 737, electricians and insulators were installing insulation over ceiling plates and cable tray supports. Some insulation was installed contrary to procedure in that slits made in insulation (to go around support) were over each other in two layers instead of at least 90 degrees to slit in other layer.

Note: Further information received from QTC gave as an example of this concern the ceiling base plates for conduit supports located between coordinates A2-A3 and R-Q on elevation 737 of the auxiliary building.

II. SCOPE

Interviews were conducted with cognizant TVA and 3M Company personnel; TVA and contractor documentation was reviewed; and personal observation made of the method used to install some of the fire-barrier material in order to evaluate the concern of record.

III. SUMMARY OF FINDINGS

A. Applicable Requirements

1. The method approved to apply the 3M Company fire-barrier material to the ceiling base plates was presented on 3M drawing 5300-H2 (see attachment). This drawing was a part of the 3M Instruction Manual furnished as a part of contract 83K85-832419. Drawing 5300-H2 showed how the slits in the material, in order to go around the supports, were to be installed so that they were not directly over one another. The slits for the two layers of fire-barrier material were to be 180° apart with the slit for the hardware cloth 90° from the first two.

   Note: In discussions with Office of Construction (OC) and 3M Company personnel, it was learned that an exception had been approved due to installation difficulties. The slits could be installed in the same quadrant as long as they overlapped one another by at least 2 inches. (This exception was reported by an interviewee as documented by a supplementary letter to the 3M Instruction Manual, but this was not identified by the investigator.)

2. Construction Specification G-73, "Inspection, Testing, and Documentation Requirements for Fire Protection Systems and Features," established independent inspection requirements to ensure conformance with design drawings and/or the Office of Engineering (OE)-approved manufacturer's instructions.

3. WBN-QCI-1.39, "Fire Protection QA Program," provided the documentation requirements for verifying proper installation of fire-barrier material. Attachment L to QCI-1.39 was the form used and signed off to verify proper installation of the fire-barrier material. Part II, item (1) of the form stated: "Verify fire barrier material is installed as per installation manual in TVA contract 832419 or 837113."

B. Findings

1. In discussions with QC personnel, inspection activities included observing the installation of each layer of 3M material to ensure correct orientation of the slits. However, one interviewee felt there might be some validity to the concern in some areas.

2. During one of the discussions, it was stated that a similar issue as this concern was raised previously concerning the fire-barrier installation in the reverse osmosis room (auxiliary building). Based on information received from the discussion, the fire-barrier material was removed from eight of the ceiling base plates, and the slit orientation was found to be correct on each of these installations. (No documentation was presented that recorded these results.)

3. The fire-barrier material around the conduit support at coordinates A3 and R over lighting board 0-BD-228-1 was removed sufficiently to determine the orientation of the slits. (This was example given by QTC.) The two layers of 3M material were taped together with the slits lined up over one another.

4. In conversations with the 3M Company and QE personnel, the following comments were received.

   a. Tests have not been conducted to determine the effects of lining up the slits over one another.

   b. If the slits were installed over one another, two possibilities were presented to make an acceptable installation.

      (1) Install another layer of 3M material with a staggered slit of at least 2 inches over the existing installation with additional caulking.

      (2) Since the base plates are attached to the building steel, computations may be possible to prove that the heat sink that the steel would provide would be sufficient to prevent unacceptable heat being transferred to the cables in the event of a fire. Based on a preliminary evaluation, an QE representative thought that such computations were possible.

5. No information was identified that would determine the number of ceiling base plates that had the fire-barrier material installed similar to the example that was examined.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

A. In regard to the concern that some fire-barrier insulation was installed on ceiling base plates contrary to procedure, the concern was substantiated based on the example examined. No information was obtained that would identify the magnitude of this condition.

B. It may be possible to perform computations to justify this type installation based on the building steel being an adequate heat sink to prevent cable damage due to heat transfer.

C. It appears that some breakdown in the QC installation and inspection process may have occurred, allowing installations contrary to approved documentation.

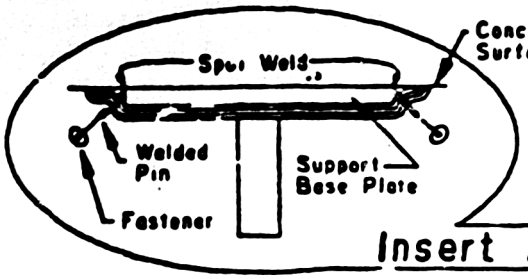
Recommendations

I-85-667-WBN-01 - Evaluate the Existing Installation

Perform an engineering evaluation to determine if the installation with the slits lined up over one another is acceptable, and document accordingly.

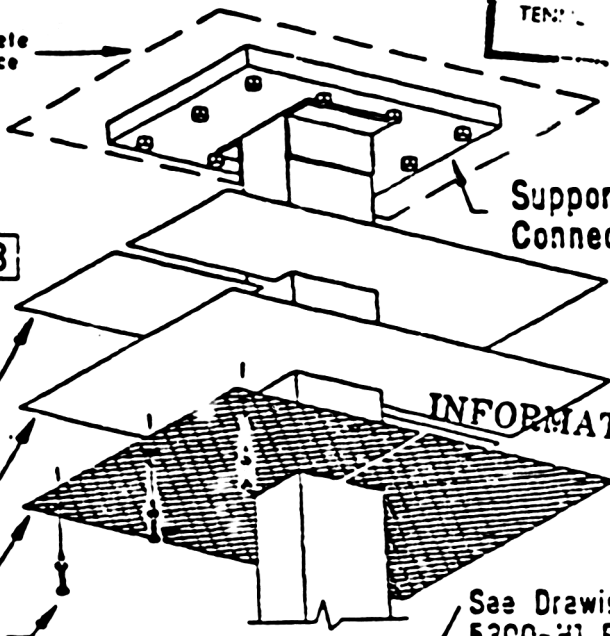
Note: If this evaluation determines the installation cannot be deemed acceptable, propose to NSRS your plans to determine how widespread the condition is and your plans for corrective action.

REFERENCE PRINT		REFERENCE DESCRIPTION
5300-H2-I	--	INSTALLATION INSTRUCTIONS
5300-H2-ML	--	MATERIAL LIST



Insert B

NOTE: Insert B Contains The Same Materials List as if Using D.N. Pins



Support Connection Point

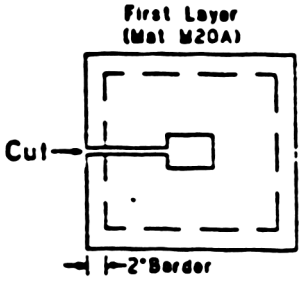
Mat M20A (First Layer)

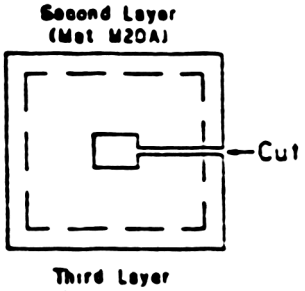
Mat M20A (Second Layer)

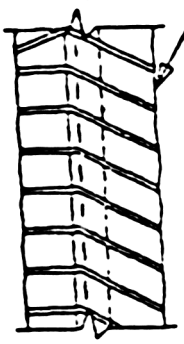
Hardware Cloth

Power Actuated D.N. Pins

INFORMATION ONLY





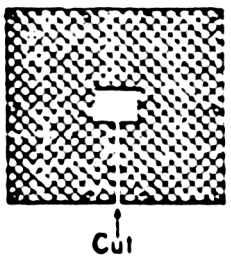


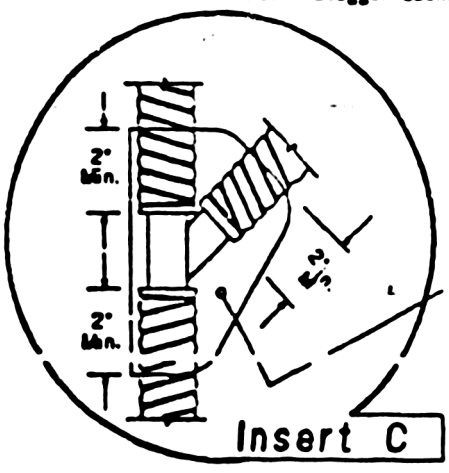
See Drawing 5300-H1 For Wrap Detail

Wrap Entire Length Of Support Then Cover Entire Length With Alum. Tape.

MASTER FILE

Note: Stagger Seams

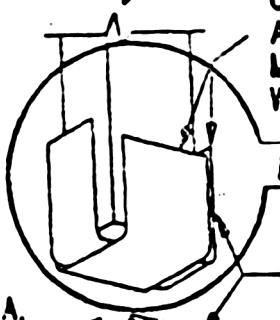




2 Layers of Mat M20A. Tied With Cord 34. Then Covered With Aluminum Tape.

NOTE: Seams of These Two Layers Should Be A Minimum 4" Apart.

Insert C



Overlap Support End As Shown With Mat M20A Before Wrapping Hanger

Insert A

Use Aluminum Tape To Hold In Place Until Wrapped Hardware Cloth

CONTROLLED

ISSUE	DATE	REV	CH.
5	10-10-83		

NOT TO SCALE	CH R. TUZINSKI
DR P.A. LeTOURNEAU	APP D.N. HUNDER

FIRE BARRIER Raceway Support Connection Point Protection System M20A

Electro-Products Division/3M

5300-H2

TVA 64 (OS-9-65) (OP-WP-5-85)

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant

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

DATE : JAN 02 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. IN-85-012-001

Subject ASTM MATERIAL SPECIFICATIONS

Concern No. IN-85-012-001

and associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by February 3, 1986. Should you have any questions, please contact K. M. Vadlamani at telephone 365-9755-WBN.

Recommend Reportability Determination: Yes X No ____

Director, NSRS/Designee

KMV:GDM
Attachment
cc (Attachment):
R. P. Denise, LP6N35A-C
D. R. Nichols, E10A14 C-K
QTC/ERT, Watts Bar Nuclear Plant
E. K. Sliger, LP6N48A-C
W. F. Willis, E12B16 C-K (4)

--Copy and Return--

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

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. IN-85-012-001
Subject ASTM MATERIAL SPECIFICATIONS for action/disposition.

_____ _____
Signature Date

NSRS RECOMMENDATIONS

Concern: IN-85-012-001

Recommendations

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.

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.

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.

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

Prepared By: R. L. Newby

PRR 4/2/86

QUALITY TECHNOLOGY COMPANY
P.O. BOX 600 Sweetwater, TN 37874 (615)365-4414

CONCERN NO. IN-85-012-001

CONCERN: CI concerned with the method used and approved by TVA when material manufactured to an ASTM material specification was "upgraded" for use in an ASME code system. CI questions the procedure used (if any) and the practice of an individual (name given) applying the following statement to CMTR'S: "All heats meet code class 2 requirements." CI supplied film copies of 22 CMTR'S (copies in file) from different vendors/manufacturers with this condition. CI stated that this practice was used on thousands of other CMTR'S. Time frame late 70's to early 80's.

INVESTIGATION
PERFORMED BY: K. M. Vadlamani

DETAILS

PERSONNEL CONTACTED:

DOCUMENTS REVIEWED:

Regulatory Guide 1.85 Revision 22, July 1984 - Materials Code Case Applicability ASME Section III, Division 1.

DETAILS, continued

DOCUMENTS, REVIEWED, continued

ASME Section III 1971 Edition through 1973 Summer Addenda, Material Requirements for ASME Class 1,2,3 MC and CS Construction.

ASME Section II 1971 Edition through 1973 Summer Addenda, Part "A" Ferrous Materials for ASME Section III applications.

Code Case N-242-1, Materials Certification-Section III, Division 1, Classes 1,2,3, MC and CS Construction, approved by Council April 10, 1980 and May 6, 1983.

FSAR Chapter 5: Section 5.2 Integrity of Reactor Coolant Pressure Boundary. FSAR Table 5.2.8-Reactor Coolant Pressure Boundary Materials-Class 1, Primary Components.

FSAR Question 5.1 concerning Code Cases Applicable to Reactor Coolant Pressure Boundary Components for NRC Quality Group A (ASME Section III, Class 1).

Topical Report, TVA-TR75-1A,Rev. 8, Table 17D2, Quality Assurance Standards for Design and Construction (Regulatory Guidance) applicable to the Watts Bar Nuclear Plant.

General Construction Specification G-62, Revision 2, 2-7-85 and Specification Revision Notice SRN-G-62-3, 2/20/85 for material documentation and acceptability requirements for ASME Section III applications.

ASME Section III, 1980 Edition, Appendix P, Article P-1000, Certified Material Test Reports.

OEDC, ASME Section III QA Manual, NCM Section 3.8, Materials Certification and Supply - Revisions: 0 dated 3/13/82, 1 dated 5/25/82, 2 dated 8/11/83, 3 dated 8/2/84 and 4 dated 12/17/84.

Quality Control Procedure QCP 1.06, Revision 17, 5/3/85 Receipt Inspection of Safety Related Items.

Quality Control Instruction QCI 1.46, Revision 1, 2/14/84, Material Upgrading.

Quality Control Procedure QCP-4.10-2 Revision 9, 11/5/84, Pipe Location Verification.

DETAILS, continued

DOCUMENTS REVIEWED, continued

Construction Specification N3M-868, Revision 2, 2/4/85 for Field Fabrication, Assembly Examination and Tests for Piping Systems.

Westinghouse Equipment Specification, G-678843, Revision 1, dated 3/6/72 - Reactor Coolant Piping Shop Fabrication, ASME Section III, Nuclear Class 1.

Watts Bar Field Instruction WBFI M-8, Revision 21, 6/16/80. Instruction for Preparing Documentation of ASME Code Systems.

47B250-1 Revision 2 and 47B250-2 Revision 1, dated 2/1/84 - Mechanical Material Substitution List for WBNP Units 1 & 2.

Nonconformance Reports:

#NCR	REV.	DATE
2968	6	11/2/83
2968	5	6/13/84
2968	4	2/11/83
2968	3	10/13/82
2968	1	6/18/82
2968	0	2/11/81
4312	0	9/9/82
4363	1	12/22/82
4531R	0	12/16/82
4532R	0	12/17/82
4567	0	1/6/83
4567	1	2/4/83
4873	1	11/30/83
5087	2	3/21/85
5925	0	2/1/85
5964	2	2/28/85
6102	0	6/3/85

SUMMARY OF INVESTIGATION:

This concern is substantiated. The subject investigation was performed from 9/8/85 to 10/30/85. This investigation revealed several inadequacies in the past and the present material upgrading practices. An overview of the investigation results is as follows:

DETAILS, continued

SUMMARY OF INVESTIGATION, continued

* Material receipt inspectors and engineers upgraded ASTM materials to ASME Section III Class 1,2 or 3. A majority of the upgrading activities took place between 1975 and 1982 and were conducted without a specific site procedure which controlled the material upgrade process.

* ASME Section III Quality Assurance Manual (Nuclear Components Manual) Section 3.8 Material Certification and Supply Procedure came into effect in March 1982. Section 3.8 was revised on 8/2/84 to incorporate all of the previous material certification and upgrade practices of WBNP construction organization.

* There is no objective evidence to indicate that, all of the previous methods used, to upgrade or certify materials to ASME Section III 1971 Edition through 1973 Summer Addenda were reviewed, evaluated and found to be adequate before incorporating them into the Nuclear Component Manual.

* There is no objective evidence to indicate that materials certified to a later code edition and addenda of ASME Section III (i.e. 1974,1977,1980 etc.) were reviewed and evaluated in accordance with the TVA Code of Record, (i.e., ASME Section III 1971 Edition through 1973 Summer Addenda) WBNP QCI 1.46 requires the responsible engineering unit or N-5 unit to ensure the adequacy of the material certified to the later editions and addenda of the code.

* WBNP's material upgrade process (stock and reclassification) and the vendor material certification documents were found to be inadequate.

* The close-out of nonconformance reports (NCR), that were issued to document, review, evaluate material and certification deficiencies were inadequate.

* The WBNP Safety Analysis Report did not list some of the ASME Code cases utilized during the installation of ASME piping systems which is a requirement of NRC Regulatory Guide 1.85 which requires code cases to be listed in the safety analysis report whenever material is accepted and installed based upon the provisions of an applicable ASME Code Case.

DETAILS, continued

DISCUSSION:

This concern was originated because of the inconsistent methods utilized by Construction Personnel without having a specific site procedure for the material upgrade process during the installation of WBNP ASME Section III Class 1,2 or 3 systems. The materials that were upgraded included, in general, material received with ASTM certifications, material received with ASME SA certifications or material received with certifications to ASME Section III Lower Class. The investigation revealed in some cases that material that was upgraded, was received specifically for use in WBNP - TVA Code Class "G" or Class "H" Systems, which are in accordance with ANSI B31.1 piping. The TVA Class "G" or Class "H" materials were certified to ASTM material specifications and were upgraded to ASME Section III Class 2 or 3/TVA Class "B" or "C". This was done without an engineering justification other than a note on applicable TVA Form 209's, such as "All items reported on this form 209 meet the technical specifications of the order or "The items on this form 209 meet the technical requirements of this contract insofar as can be determined at this time and are approved for field use."

In early 1982, the TVA ASME Section III Quality Assurance Manual, NCM, Section 3.8 was issued addressing the material certification and supply requirements by ENDES and Construction. This section was revised as conditions dictated. Finally in Revision 3, dated 8/2/84, it included a description of previous material reviews at WBNP. In Paragraph 1 of the "Objective" Section, it states that "the material procured for WBNP use does not meet either the current NCM-QA Manual requirements or the ASME Section III NCA-3800 Quality Assurance requirements. However, the material is acceptable if it meets the requirements of the Watts Bar Code of Record. For those materials procured prior to April 10, 1980, the material shall meet the requirements of the 1971 Edition, Summer 1973 Addenda or Code Case N242-1". This paragraph also approved the following methods which were previously used for material certifications: A signed statement on the manufacturer's CMTR or COC, a signed memorandum or a TVA prepared CMTR. A specific site procedure was issued (QCI 1.46) in accordance with the guidelines provided in the WBNP ASME Section III QA Manual Section 3.8 and General Construction Specification G-62, for the purpose of providing instructions to upgrade/reclassify materials and generate necessary documentation to meet the material requirements specified in ASME Section III.

DETAILS, continued

DISCUSSION, continued

Discussions with several cognizant construction personnel relative to material upgrade and certification indicated that they are aware of the current requirements. However, they were not sure of the past practices of material upgrade which were "bought off" by inclusion in the current procedure. Some construction personnel in the cognizant units expressed that TVA management should have considered a documented evaluation, on an audit basis, of all the previously utilized methods for material upgrade, because those activities were conducted without any specific procedure. This view has been expressed because a majority of all material upgrade activities were performed after installation was complete and not before installation. It appears from the discussions with the cognizant supervisory staff, that they do not support the idea that WBNP-Construction Units have to go back and evaluate conformance of all of the previous material upgrade practices in accordance with the current procedural requirements.

During the investigation several NCR's issued and closed by the WBNP Construction Units were reviewed. A majority of these NCR's were issued because of the suspected lack of material control at the point of issuance for installation purposes as well as inadequate material verification instructions at the time of installation. The NCR's also indicated that there was no site requirements for the verification of heat numbers during any QC inspections of code installations. Discussions with cognizant construction units to determine how the materials were checked for adequacy before, during and after an installation is complete, resulted in conflicting answers. It was stated that the WBNP Field Instruction WBFI M-8 (currently not in effect) was the controlling procedure for documenting all of the activities related to code fabrication/installation of mechanical piping system assemblies or parts (Both in the shop and field). Per this procedure a Mechanical Engineer was required to verify the acceptability of materials before welding activity starts. They were also responsible for material procurement in a limited manner (at the site) for the system that they were responsible for. Some Mechanical Engineers, use to verify material adequacy and traceability of materials (heat numbers) over the telephone with the cognizant construction foreman. This was due to the fact that the material issued to the field had already been inspected by QC at the time of receipt and because of a fit-up inspection by QC was a requirement for all

DETAILS, continued

DISCUSSIONS, continued

ASME code fabrications/installations. Some of the engineers who were contacted, indicated that the traceability of materials to a particular ASME Class was not often reviewed because the construction crew and the warehouse issue department are responsible for making sure that the installation documents and the warehouse material issue request agree with each other. In addition, it was stated that the installation sketch or/drawing would normally contain material, classification, sizes, drawing or system number, and other pertinent information which could be utilized by construction and inspection personnel during the installation activities. Discussions with cognizant inspection personnel indicated that the material verification activity included a comparison of Form 575 (warehouse material issue request) to the weld operation sheet or any other pertinent document such as flange bolt operation sheet or cutting operation sheet. The verification activity was to insure that the material, grade, identification of heat number (if applicable) size, etc., conformed with the installation documents. There was no requirement to verify materials of the same heat number and the same configuration with different code classes with corresponding material test reports , if the classification was not marked on the material.

From these discussions and the reviews performed, it is apparent that identical materials with the same heat number were not always distinctly identified to an applicable code class by marking the item when they were certified to different code classes. WBNP Construction received many different code class materials with identical nomenclature. Several inadequately certified and inadequately controlled materials were issued and installed in several systems as evident from the NCR´s issued which were subsequently closed. The present practice is to have the TVA warehouse inspectors etch or stencil a numeral "1" at the end of material heat number for ASME Section III Class 1, to distinguish them from identical material certified to a lower ASME Section III classification, if they are not uniquely identified.

Discussions were held with several cognizant individuals to determine why a majority of materials were upgraded at the time of receipt inspection and/or after the acceptance of installations. The individuals interviewed could not give any reason except that the construction schedules or work pressure might have created the alleged situations where potentially unqualified material would have been accepted and upgraded or installed and upgraded.

DETAILS, continued

DISCUSSIONS, continued

A review of several TVA prepared certification documents (i.e., CMTR) showed that on several occasions the certification documents did not include the reason or justification for upgrading the material or did they reference an NCR which would provide the reasons for the material upgrade. From the review of material receipt documentation, which included unauthorized material upgrade practice, it appears that this unauthorized and uncontrolled activity created some of the confusion and potential material problems identified during the final installation document review performed by the site personnel. Some of the individuals who were responsible for the material upgrade at the time of receipt inspection were not aware of the differences in QA material certification requirements of ASME Section III and 10CFR50 Appendix "B" installations from a Nuclear Safety related standpoint versus Important to Safety .

A review of the examples provided by the concerned individual indicated that the material conforms to the applicable material specification requirements with exceptions as noted in Attachment 1. The review indicated that most of the materials upgraded by the individual being questioned by the CI, were noted to have been certified to both ASTM and ASME material specifications. However most of the materials were not certified to ASME Section III or TVA code of record i.e., ASME Section III 1971 Edition through Summer 1973 Addenda. The cognizant individual who wrote the statement "All heats meet Code Class 2 or Code Class 1 Requirements" (as applicable) did not indicate whether or not the material upgraded was found to be certifiable in accordance with ASME Section III, WBNP Code of Record requirements. The individual did not include a reason why the material required an upgrade at that time (1981), nor did the individual reference any pending NCR's or pertinent information which would have provided a justification for material upgrade.

FINDINGS:

1. The NRC Regulatory Guide 1.85 Rev. 1, July 1984, endorsed Section III ASME Code Cases N-242 and N-242-1 which were approved by Council on 4/10/80 and 5/6/83 respectively. This regulatory guide states (for both of the code cases) that Code Case N-242-1/N-242 "is acceptable subject to the following condition in addition to those conditions specified in the Code Case: Applicants should identify in their safety analysis reports the components and supports for which the code case is being applied and should specify the respective paragraphs of the code case."

DETAILS, continued

FINDINGS, continued

NCR 2968, Revision 6, dated 11/2/83, addressed material which was: 1) received and accepted as ASTM A-240 TP 304 (Stainless steel plate); 2) was installed in the product form of a short transition spool piece (transition from ASME Class 1 to Class 2) in System 62 piping; and 3) did not previously meet all of the qualification requirements of ASME Section III Class 1. Disposition Approval Memorandum #NEB 83 1201 252 from ENDES indicated that the material was to be upgraded per Code Case N-242-1 and NDE would be required . A review of FSAR Chapter 5 Section 5.2-1, Table 5.2-8, Reactor Coolant Pressure Boundary Materials Class 1 Primary Components indicated that the Code Case N-242-1, is not listed in the appropriate component listing.

2. FSAR Chapter 5, Subsection 5.2.1.4 "Applicable Code Cases" lists Code Case 1423-1 which is applicable to Reactor Coolant Piping for Units 1 & 2. However, Table 5.2-8, "Reactor Coolant Pressure Boundary Materials", lists Code Case 1423-2 (Code Case for use of SA182 F304N Fittings) for Reactor Coolant Piping Materials.

3. NCR 2968, Revision 6, dated 11/2/83, applicable to Unit 1 only, was issued to document, review, and evaluate the nonconforming condition created due to the utilization of ASTM A 240, TP 304, Heat Number 855675, Plate Material which did not meet ASME Section III Class 1 Material Requirements. This plate material was used to fabricate and install a transition spool piece (pipe nipple) which connected the Reactor Coolant Pump Loop #3 Cold Leg to Excess Letdown Heat Exchanger Piping (1" Dia). Disposition Memorandum #NEB 83 1201 252 gave a "use as is" disposition based on the upgrading of the material per Code Case 242-1 in addition to Liquid Penetrant Examination of all external surfaces per NB-2550 (recommended in Block No. 3 of NCR) The NCR was closed per Memorandum WBNP 84 0120 123, after performing a surface area non-destructive examination of the transition piece by Liquid Penetrant Method (Report #66440 dated 12/12/83).

Also, ECN 4486 was issued on 1/20/84 to revise TVA Bill of Materials 47BM406-2 Sheet 2 of 15 (Rev. 4, dated 1/24/84) to include ASTM A 240 TP 304 as an acceptable material for detail A8 of 47W406 Drawing series (for Unit 1 & 2).

DETAILS, continued

FINDINGS, 3, CONTINUED

The investigation revealed the following inadequacies in the initiation, review, disposition and close-out of NCR 2968 Rev. 6.

(a) The NCR description of nonconforming condition did not include heat number of material, and which requirement(s) of ASME Section III for Class I materials were not met.

(b) ENDES memorandum NEB 83 1201 252 stated (in the approved disposition) that the material was to be upgraded per Code Case N- 242-1. There is no documented evidence available to indicate whether or not this nonconforming material was evaluated and documented in accordance with the requirements of Code Case N-242-1.

(c) ASME Section III, 1971 Edition through 1973 Summer Addenda, Article NB-2000, Sub-paragraph NB-2510 states in part: "Pressure-retaining material shall be examined by non-destructive methods applicable to the material and product form as required by the rules of this sub-article". NB-2531 states in part "All plates 2" nominal thickness and less used for piping, pumps and valves shall be examined by the angle beam ultrasonic method in accordance with ASTM A-577-69". There is no documented evidence available to indicate that the plate material, ASTM A 240, TP 304, Heat Number 855675, (1-3/4" thick. x 240" long x 72" wide), was qualified by ultrasonic test for use in ASME Class 1 applications, (i.e., to fabricate and install a product form, such as a pipe nipple).

4. NCR 2968, Rev. 6 addresses the pipe nipple installed in the Reactor Coolant Piping in Unit 1 only. For the purpose of this investigation, the field installation documentation for both units were considered. Field Weld Operation Sheets (FWOS) for the pipe nipples installed on both units were reviewed. FWOS for the Unit 1 pipe nipple (Field Weld 1-062B-179-01) was found acceptable. The FWOS for the Unit 2 pipe nipple (Field Weld 2-062B-T278-01) indicated that heat number M3579, (1" dia. x 6" long, Schedule 160 stainless steel pipe,) SA 376, TP 304, was installed by welding it to a 1" diameter Excess Letdown Cold Leg Loop #3 in Unit 2. (Westinghouse, Serial Number 4845, Spin RCPCFB-09). This review revealed the following inadequacies:

DETAILS, continued

FINDINGS, continued

4., a, continued

(a) The Stainless Steel Pipe, Heat. #M3579, SA376 TP 304, SCH/160 was certified (by Capitol Pipe and Steel Products) to ASME Section III, Class 2, 1977 Edition through the Summer 1978 Addenda, Paragraph NC2000 including the provisions of NC-2550 and NC-2610. There is no objective evidence to indicate whether or not this material, certified to a later code edition and addenda other than the WBNP Code of Record (1971 Edition through 1973 Summer Addenda), was reviewed, evaluated and found to be acceptable for use in Watts Bar ASME Code piping systems (Ref. QCI 1.46 Step 6.1.2.1 & 2).

(b) The certification document indicated that the material is in compliance with ASME Section III Article NC-2000 (Materials) and sub-article NC-2550 (Examination). ASME NC-2551(a) states that examinations are to be done in accordance with the corresponding material specification requirements. ASME Section II, Part A, 1973 Summer Addenda, SA376 TP304 does not require any method of non destructive examinations unless so specified by the purchaser (TVA) by invoking supplementary requirements of the material specification. This pipe material, Heat #M3579, which was certified to ASME Section III, Class 2 requirements, does not meet the qualification and certification requirements specified for ASME Section III Class 1. ASME Section III sub-paragraph NB2551(a),states in part that... "wrought seamless and welded (without filler metal) tubular products and fittings (including flanges and fittings machined from forgings and bars) shall be examined in accordance with ultrasonic, eddy-current, magnetic particle or liquid penetrant, or radiographic examination". There is no documented evidence to indicate that the material received and accepted as ASME Section III Class 2, was: 1) non-destructively examined; 2) The results reviewed and accepted; and 3) material was reclassified to ASME Code Class 1. There is no documented justification to approve the use of lower code class material (Code Class 2) installed in a higher code class piping system (Code Class 1).

DETAILS, continued

FINDINGS, continued

4, continued

c. The FWOS for Weld 2-062B-T278-01 stated in a footnote, that the pipe material installed (Heat #M3579),was a temporary pipe and that an orifice pipe was to be installed after flush. This footnote was investigated to verify how the Unit 2 Construction Group is keeping track of this open item. Discussion with the cognizant construction unit personnel indicated that the item is supposed to be verified during the line and grade verification tests (Test #17, 18 or 23) conducted by Quality Control Personnel in accordance with procedure QCP 4.10-2 (Pipe Location Verification, Rev. 9 dated 11/9/84). It was also stated by cognizant construction personnel that the pipe location verification tests will be included in the WBNP Universal Inspection and Test - Piping Report Log. A review of this computerized log dated 10/14/85 for Unit 2, System 62, indicated that the segment pertinent to the field weld in question, was included in Segment #2-062-RB-P-809-1-014G. First level tests 23A and 27A were not completed as of the date of this investigation. The investigation revealed the following potential inadequacies from the view point of tracking temporarily installed permanent plant item(s) and/or temporarily installed unqualified material for an intended application:

(i) Procedure QCP 4.10-2 does not address the verification of material qualification used in any piping system of a different code classifications nor does the inspection checklist cards (i.e., QCP 4.10.2 Attachment A thru D) have an inspection attribute to alert the cognizant quality control inspection personnel for the required verification.

(ii) The use of a lower code class material in a higher code class system piping system was not justified and documented by any of the cognizant construction units involved in the review and approval of the FWOS.

5. The cover sheet and Data Sheet 1, on ECN 4486 lists NCR 2986 Rev. 6 instead of NCR 2968 Rev. 6.

DETAILS, continued

FINDINGS, continued

6. NCR 4363 Revision 1, dated 12/22/82 was issued to document, review, evaluate and take necessary corrective action relative to an incorrectly transferred heat number (102M007 instead of 102M2007) on a piece of pipe which was installed in System 70, ASME Code Class 3 piping in Unit 2. The NCR as closed on 3/1/83 based upon ENDES use as is disposition Ref. NEB 83 0207 270). The following discrepancies were noted in reviewing this NCR:

   (a) There is no documented evidence to indicate that the incorrectly transferred heat number on the item installed has been rectified (#102M007 to 102M2007).

   (b) A review of the certification for Heat #102M2007 from Capitol Pipe and Steel Products Company indicated that the material was certified to ASME Section III 1974 Edition through 1976 Winter Addenda. However, in accordance with QCI 1.46 Step 6.1.2, this material requires review and evaluation in order to verify the material adequacy in accordance with the Watts Bar Code of Record, (i.e., ASME Section III 1971 Edition through 1973 Summer Addenda). There is no documented evidence that this was performed.

   (c) ASME Section II, Material Specification SA106, Summer 1973 Addenda, Section 13 "Hydrostatic Test" Paragraph 13.2 specifies that the hydrostatic test be maintained for not less than 5 seconds. It is not evident from a review of the mill test report for heat number 102M2007, whether or not the pipe material was held for 5 seconds during the hydrostatic test performed by the producing mill.

7. NCR 4312 Revision 1 dated 9/9/82 was issued to document, review and evaluate the conformance of material heat number 04930, (3/4", schedule 160, SA 376 TP 304, Stainless Steel, Seamless Pipe), with the requirements of ASME Section III Class 1. The reason for documenting this potential nonconforming condition was because of a lack of documented evidence of non-destructive test per NB-2550 to establish that the material was in compliance with ASME Section III Class 1 material requirements. The approved disposition (per ENDES Memorandum NEB 82 1126 264) required, Liquid Penetrant Examination, (Report 50242, dated 4/23/83) on

DETAILS, continued

FINDINGS, continued

7. continued

the installed material. (Between Welds No. 1-062B-T169-2&3 approximately 3" long per sketch 406-8 Sheet 2, Revision 3). The NCR was closed and the item was released from the nonconforming condition on 1-26-84 per Memorandum WBNP 84 0214 113. The following inadequacies were identified during the review of this NCR:

(a) The description in the NCR does not include installations that may have been affected by the use of this nonconforming material. Instead under item 1F of the NCR it states that it is applicable to "various systems". Since the closed NCR has only one NDE Report, #50242, attached to it which was performed on a 3" length out of the 20 feet received by WBNP, there is no objective evidence to indicate the following: 1) whether the rest of this material was similarly examined (Liquid Penetrant tested); 2) that it was verified, that the material was installed in a lesser ASME Code Classification (i.e,TVA Class B/C/or D); or 3) that the suspected material, if not used in its entirety, was downgraded so that it may not be inadvertently issued for higher code class installation without having performed an upgrading of material and documentation in accordance with ASME Class 1. (Note: TVA initiated a certified material test report, dated 2/8/84, indicating the upgrading of the material installed between Welds #1-062b-T169-02 & 03 only.)

(b) There is no objective evidence to indicate that the material supplier, Capitol Pipe and Steel Products, was contacted to obtain a corrected certification document (ENDES Memorandum NEB 82 1126 264 Paragraph 1 indicated that Vendor's certification was incorrect).

(c) The material certification documents from the supplier do not indicate compliance/applicability with the provisions of 10CFR21 "Reporting of Defects and Noncompliance", for the material supplied under TVA-WBNP Purchase Order 80KA3 825673.

DETAILS, continued

FINDINGS, continued

8. A review of certified material test reports (CMTR) indicated that the materials supplied were certified to later material code editions and addenda which is other than what is committed by Watts Bar Code of Record. In accordance with Procedure QCI 1.46, Step 6.1.2, adequacy of these materials must be ensured that the SA specification is identical to or more stringent than the SA Specification of the Code of Record (i.e., ASME Section III 1971 Edition "thru" 1973 Summer Addenda). There is no objective evidence to indicate that this activity is being complied with by the cognizant construction units. (See Attachment 1 for Examples)

9. The review of receiving inspection documents indicated that materials were upgraded to ASME Section III Code Classifications (i.e, 1,2 or 3) by the QC Receipt Inspectors without documented justification. See Attachment 1 for examples.

10. There were inadequacies noted in the procurement documentation received from various suppliers, which had been accepted by TVA Receipt Inspection Personnel and/or upgraded by TVA cognizant construction units. Some of the inadequacies noted were in the areas of heat treatment time and temperature statements, NDE Reports and personnel qualifications, questionable chemical analysis of identical heat numbers, holding time during hydrostatic test, etc. See Attachment 1 for Examples.

11. NCR 4531R Revision 0 dated 12/16/82 and NCR 4532R Revision 0 dated 12/17/82 were issued to document material deviations from the Bills of Materials 47BM465-1 and 47BM406-2 in WBNP Units 1 & 2, Systems 62, 68 and 74. WBNP Construction units utilized SA 182 F304 stainless steel forged fittings in the ASME Section III Piping, transition from Code Class 1 to Code Class 2 areas, instead of SA376 type 304, stainless steel seamless pipe. The proposed disposition was to revise the Bills of Materials to include SA182 or SA 479 as alternate (acceptable) materials for

DETAILS, continued

FINDINGS, continued

11. continued

the installation of ASME Section III Class 1 to Class 2 transition piping in the affected systems. The proposed disposition was approved by ENDES via Memorandum SWP 83 0203 040 and accordingly the Bills of Materials were revised via ECN 3743. The NCR's were closed on 2/17/83 by the WBNP construction N-5 Unit. The following inadequacies were noted during the review:

(a) Both of the NCR's do not indicate actual piping joints which were in question.

(b) Both of the NCR's do not indicate adequacy of the installed materials from a procurement standpoint.

(c) Both of the NCR's do not address the apparent root cause for this deviation from the applicable design specifications.

(d) NCR 4532R Revision 0 description Item 1A Bill of Material 47BM465-7 does not correspond with that which is listed i.e., 47BM465-1 in the ENDES Approved Disposition Memorandum SWP 83 0203 040. This discrepancy was notified to the construction N-5 Unit for necessary corrective action.

12. It appears that WBNP Contract, 74C38-83015, was issued to Dravo Corporation as a principal piping contract (Dravo Fabrication Job. E-2879) and to supply loose permanent plant quality assured material. While reviewing certification documents for heat number HH-772, (ASTM A182 F304) supposedly received under TVA Form 209 NO. 76-5135, partial shipment 12S, the following discrepancies were noted:

(a) TVA Form 209, Numbers 76-5135 and 76-5135A do not indicate receipt of heat number HH-772, (ASTM A182F 304, 1 1/2", 150 lbs. FF WN Flange) as indicated on the certification document and also the current heat number/heat code log.

(b) TVA WBNP contract 74C38-83015 to Dravo Corporation is for the fabrication and supply of principal piping components in accordance with ASME Section III for WBNP ASME Section III

DETAILS, continued

FINDINGS, continued

12. b. continued

piping installations. There is no objective evidence to indicate Heat Number HH772 was reviewed, evaluated, upgraded and certified to ASME Section III Class 1, 2 or 3 in accordance with any of the WBNP applicable procedures (QCI 1.46, NCM 3.8 or Specification G-62).

(c) A QC Receiving Inspection Document could not be located at RIMS or DCU Records, which would indicate the acceptability of this material (Heat # HH-772) at the time of receipt, from WBNP ASME Section III Code of Record standpoint.

(d) Heat Number HH-772, certification document does not indicate the year of ASTM A182 material specification with which it conforms to. This information is required to determine material acceptability with General Construction Specification G-62, Appendix B, Table B.1.

(e) The Heat Number/Heat Code Log dated 10/21/85 listed heat number HH-772 without an appropriate TVA Class of Material and also a corresponding traceable TVA receiving document number.

13. The approved disposition to NCR 2968R Revisions 2 & 3 (Memorandum NEB 82 1221 294) states as part of the resolution required that the WBNP construction units were to review and verify the quality assurance program in place for required segregation of material by class in the warehouse, the transfer to the craft hold area, and the hold area itself. The time frame for this review and verification, was for the past and present practices.ENDES's Memorandums, NEB 83 0208 254 with reference to NCR 4567R Revision 0 and NEB 83 0324 286 with reference to NCR 4567R Revision 1, specified that WBNP cognizant construction management should evaluate the significance of the NCR in light of the results of the QA program review conducted as part of the disposition to NCR 2968R Revision 3. The following discrepancies were noted in these NCR's and memorandums.

DETAILS, continued

FINDINGS, continued

13.

(a) From the discussions with cognizant construction units and a review of NCR's 2968R Revisions 0 through 6 and NCR 4567R Revisions 0 and 1, it is not evident: (1) whether or not the construction units had reviewed, verified and documented the satisfactory completion of the above disposition required by ENDES; and 2) that there is objective evidence to indicate the cognizant construction units had reevaluated the significance and impact of NCR 4567R Revision 1 as compared to NCR 2968R Revision 3.

(b) ENDES Memorandum NEB 83 0421 285 with reference to NCR's 2968R Revision 3 and 4567R Revision 1 documented the confirmation of verbal agreements between the Watts Bar Design Project Manager, the WBNP Assistant Construction Engineer, the WBNP Authorized Nuclear Inspector and the WBNP Nuclear Engineering Branch Representative. The purpose of this memorandum was to allow the cognizant construction unit personnel to perform the Liquid Penetrant Examination of only those areas of the systems affected, which are readily accessible, without any of the pipe hangers, supports or restraints being removed. This ENDES memorandum is in conflict with the previously approved dispositions contained in Memorandums NEB 82 1221 294 Paragraph 2 and NEB 83 0324 286 Paragraph 4 [applicable to NCR's 2968R R2 & R3 and 4567R R0 & R1] because of the following reasons:

(i) Documented justification, for the installation of potentially quality indeterminate materials in QA systems as well as for the violation of ASME Section III material examination requirements for code class 1 applications, was not provided.

(ii) From the review of corrective actions implemented by the cognizant construction units, it appears that no attempts were made to implement other NDE options (such as volume of metal) provided in ASME Section III sub-article NB-2500 and/or ENDES approved disposition contained in Memorandum NEB 82 1221 294.

DETAILS, continued

FINDINGS, continued

(c) NCR 4567R Revision 0, Page 3 of 4 Item B.1.a listed Subassembly 1-62-S-17-2 Welds 12 and 10, Sketch 406-8 Sheet 2 as a 3/4" diameter pipe, SA 376 T304. NCR 4567R Revision 1 Page 5 of 5 Item B.1.a, added Weld 13C1 of Subassembly 1-62-S-17-2 Sketch 406-8 Sheet 2. Corrective action was implemented via NDE Report Number 50246 dated 4/23/83. A review of Sketch 406-8 Sheet 2 Revision 3, indicated that the material welded by welds 10, 11 and 12, is a 3/4" Tee, 6000#, SA182 F304, instead of a pipe as identified by NCR Item B.1.a. Also, from a review of the NDE Report, it is not evident that the NDE was performed on the above welds i.e., 10, 11,and 12 of Subassembly 1-62-S-17-2. The NDE report identified that welds 12 & 13 of Subassembly 1-62-S-17-2 are inaccessible and therefore the Liquid Penetrant Examination was not performed. Weld 10 is not addressed in the NDE Report at all. (Note: All weld numbers are preceded by 1-062B-T169-).

(d) NCR 4567R, Revision 1, Sketch 406-9 Sheet 1 Revision 3 (attached to NDE Report 50808 dated 4/28/83) and Sketch 406-7 Sheet 12 Revision 7 (attached to NDE Report Number 50810 dated 4/28/83) indicated Arc strikes between Welds 1-062B-T183-17 & 18 and Welds 1-062B-T208-11 & 1-062B-T283-1. These sketches indicated that the Arc strikes observed were Liquid Penetrant Examined. However, there is no documented evidence to indicate that the Arc strikes which were observed on QC accepted systems were reported, evaluated and corrected per the applicable site procedures.

(e) NCR 2968R was issued on 2/11/81 and was closed on 1/5/84 by the cognizant construction units. The actions required to prevent recurrence which were specified in NCR 2968R Revisions 0 through 5 were as follows:

"Instruct warehouse inspectors to assure that all Class 1 material received at WBNP bear a unique Class 1 identification or that such identification is etched on the material prior to warehouse storage (NCR Revisions 0, 1 & 2). Instruct all Mechanical Engineers and Inspectors that the proper procedure must be followed when verifying heat numbers Also, instruct the inspectors to verify material class (NCR Revision 3).

DETAILS, continued

FINDINGS, continued

13. e. continued

NCR Revisions 4 and 5 did not include any action required to prevent recurrence. A review of the corrective action proposed and documented revealed the following information :

(i) Documented justification for omitting the action required to prevent recurrence from NCR Revisions 4, & 5 is not provided.

(ii) It is not evident that the cognizant construction units implemented the action required to prevent recurrence specified in NCR Revisions 0, 1, 2 & 3.

(iii) It is not evident as to what proper site procedures were required to be revised or followed so that all Mechanical Engineers as well as inspectors could verify heat numbers.

(iv) It is not evident as to how the verification of material class by the inspectors is to be accomplished. For example: Visual verification of markings by comparing material with vendor documentation and documenting the acceptability of materials or verification by documenting actual markings and other traceable information from material to documentation and accepting the material.

(v) It is not evident what procedural measures and controls were made to instruct warehouse inspectors on the process of etching appropriate material with Class 1 identification.

(f) NCR 2968R Revisions 3, 4 and 5 in Item 4 of the description stated that 2" diameter, Schedule 160, SA 376 T 304, Heat Number 459025 approximately 531 feet was received on various occasions with ASME Section III Class 1 and Class 2 certifications. It was noted that approximately 13 feet was installed per Fabrication Sketch 406-7 Sheet 3 between Welds 2 & 17. Item 4 also states in part that the above material

DETAILS, continued

FINDINGS, continued

13. (f) continued

was installed in a Class 1 application of WBNP Chemical & Volume Control System (#62). Page 1 of Revisions 3, 4 & 5 of the NCR, identified that Systems 62, 68, 74 and 87 were affected. From the review of this NCR and the corresponding corrective actions implemented, the following inadequacies were noted in the close-out:

(i) The description of this NCR did not include the actual installation(s) belonging to Systems 74 and 87, which were potentially affected by the utilization of inadequately qualified material with reference to ASME Section III Class 1 applications.

(ii) NDE Report Number 49916, dated 3/14/83 indicates the Liquid Penetrant Examinations were conducted on Welds 1-087B-T040-1 through 16,(System 87) Sketch 435-18 Sheets 1-2 Rev.6, because of the utilization of questionable pipe with Heat Number 459025. However, the NCR does not specifically call out any welds to be inspected under System 87. Therefore, it is not evident, whether the piping between the welds listed is the only portion of System 87 that was affected by this NCR (Note: This is the only NDE Sheet, pertinent to System 87 piping, available on microfilm at RIMS).

(iii) The closed NCR available at RIMS on microfilm does not include corrective action documentation pertinent to System 74 installations which were affected by the utilization of indeterminate materials in an ASME Section III Class 1 applications.

(iv) A majority of the corrective action documentation, applicable to System 62 Subassemblies which were potentially affected by this nonconforming condition, and which were added to this NCR via Revision 4 & 5, is not available at RIMS on microfilm. Therefore, the documented evidence that corrective action was taken can not be verified.

DETAILS, continued

FINDINGS, continued

13. continued

(g) NCR 2968R, Revision 5, dated 6/13/83, added Item 5 on Page 3 of 4, which describes that a 2" diameter, Schedule 160, Stainless Steel Pipe, SA 376 T304, with Heat Number B6698, was installed (16" inches) in Subassembly 1-68-S-1-3, between Weld Number 2 on Fabrication Sketch 465-1 Sheet 3 and FW-14 on Dravo E-2879-IC-36. From the review of the subject NCR (closed out) on microfilm at RIMS the following inadequacies were noted:

(i) The description of the nonconforming condition had not indicated the ASME Section III Code Class(es) in accordance with which the material was received and accepted.

(ii) Corrective action documentation pertinent to the Subassembly listed could not be reviewed since it is not available on microfilm with the closed NCR.

(iii) It is not evident from the review whether or not the rest of the material pertinent to Heat Number B6698 (certified to both Class 1 & 2) was accounted for and appropriate measures were implemented to prevent the inadvertent issuance of the portion of this material (Re: ASME Section III Lower Class material installed in an ASME Section III Class 1 System).

(h) A portion of the corrective action specified in NCR 2968R Revisions 0 through 5 was to perform Liquid Penetrant Examination on all fittings (external surfaces and accessible internal surfaces)available in the warehouse which were made out of Heat Numbers AAZ, EY and EU. In reviewing this the following discrepancy was noted:

(i) It cannot be determined that Liquid Penetrant Examinations on the remaining material has been performed, and the results found acceptable.

DETAILS, continued

FINDINGS, continued

13. continued

(j) The closed copy of NCR, 2968R, contained as an attachment, a Non-destructive Examination Report 56733 dated 6/22/82. This NDE Report referenced NCR 2968R Revision 1 and documented the fact that twelve 2"x 3/4" inch reducing inserts located at "HUT 21" were surface evaluated by Liquid Penetrant Examination and were found to be acceptable. A comparison review of this NDE Report with NCR Revisions 0 & 1 identified the following inadequacies:

(i) This NDE Report does not identify the applicable heat number of the material being examined. Discussions with N-5 unit personnel indicated that the heat number involved might be "AAZ".

(ii) NCR 2968R, Revision 0, Page 2 under recommended disposition, indicates that 18 reducing inserts (2" x 3/4" inch) with Heat Number "AAZ" were remaining at the warehouse. NCR Revision 1, Approved Disposition, states that the remaining reducing inserts (i.e., 18) in the warehouse will have Liquid Penetrant Examination on all external surfaces and accessible internal surfaces. However, NDE Report 56733 identified only twelve 2"x 3/4" inch reducing inserts found to be acceptable. There is no documentation available to indicate the status of the other six (6) reducing inserts, if in fact the twelve inserts inspected were Heat Number "AAZ".

(k) NCR 2968R was considered to be a generic nonconformance report and therefore each system (WBNP Unit 1) affected by this NCR was supposedly released on a partial release form, from the nonconforming status in accordance with Procedure QCI 1.02, Attachment-D. A review of the Attachments "D" which were available with the closed-out NCR at RIMS indicated the following inadequacies:

(i) NCR 2968R Revisions 3,4 & 5 indicated that Systems 62, 68, 74 and 87 were potentially affected by the nonconformance condition. The review of the records indicates that partial releases from the subject NCR were available for all of the systems referenced except System 74.

DETAILS, continued

FINDINGS, continued

13. (k) continued

(ii) Partial releases from nonconforming status relative to Systems 62 & 68 dated 1/20/83 and 2/11/83 respectively, were issued prematurely at the time of Revision 2 of NCR 2968. These partial releases indicated that all of System 62 & 68 were released on the dates indicated above. However, a review of NCR 2968R Revisions 4 & 5 dated 2/15/83 and 6/13/83 indicated that several subassemblies potentially affected by the nonconforming condition were included which are covered by Systems 62 and 68.

(l) NDE Report Number 50217, dated 1-18-83, indicated that a 2" x 1" reducing insert located between welds, 1-068A-T015-25 and 1-068A-T015-26 on sketch 465-5 Sheet 1-15 Rev.3, was Liquid Penetrant Examined per the Corrective Action Requirements of NCR 2968R (i.e., for material upgrade) and it was found to be acceptable. A comparison review of the above information with the nonconformance description revealed the following information:

(i) The NCR referenced on the NDE Report did not include any nonconforming conditions related to a reducing insert of size 2" x 1".

(ii) Neither the NDE Report nor the NCR 2968R indicate the applicable heat number for the 2" x 1" reducing insert that was in question.

(iii) The scope of installations pertinent to WBNP Systems which were potentially affected by this material of unknown characteristics i.e, specification grade, heat number is indeterminate.

14. NCR 5925 , Revision 0, dated 2/1/85 was issued to document, evaluate, provide and implement necessary corrective action required to upgrade Class 3 material to Class 2. The NCR description in part states, "during welding QC review of welding

DETAILS, continued

FINDINGS, continued

14. continued

operation sheets 2-001B-T018-20 & 20A it was discovered that the class of the coupling could not be verified as Class B or Class C". The weld operation sheet called for the coupling to be SA105 Class B. The material involved was indicated to be 2" coupling, S/W, ASTM A105, Heat Number K551. This NCR disposition was to reclassify and upgrade material from ASTM A-105 Class "C" to SA-105 Class "B" and the NCR was closed-out on 4/12/85. From the review of this NCR and the corrective action documentation the following inadequacies were noted:

(i) The NCR identified only two piping joints where the suspected material with Heat Number "K551" was utilized. The certification documents from the vendor identified the quantity supplied to be eighteen. TVA certified material test report listed the quantity to be "all", with no actual total given.. The other installations which were potentially affected by the utilization of the subject couplings with Heat Number K551 were not listed in the NCR. Documented evidence traceable to NCR 5925 is not included to justify the upgrade of all of the material with Heat Number K551.

(ii) This NCR indicated the apparent cause for the nonconforming condition to be because of a failure of WQC to properly verify class of material. The NCR was closed without indicating the preventative measures taken to preclude the recurrence of this condition.

15. NCR 6102, Revision 0, dated 6/3/85, was issued to document, review, evaluate and implement necessary corrective action as related to the reclassification from ASME Section III Class 3 certified material to ASME Section III Class 2. The material involved is a 2" WN flange, ASME Class 3, (S/S, SA 182 F304, 150#), Heat Number HH773 located at Weld Number 2-062A-D014-01. The approved disposition was to upgrade the flange with Heat Number HH773 to ASME Code Class 2 in accordance WBNP QCI 1.46. The NCR was closed on 6/10/85 after upgrading evaluation was performed by TVA Quality Management Organization (dated 6/6/85). From the review of the above NCR the following inadequacies were noted:

DETAILS, continued

FINDINGS, continued

15. continued

(i) TVA Certified Material Test Report (CMTR) for Heat Number HH773, dated 6/6/85 indicated that the material meets ASME Section III Class 2 construction in accordance with 1974 Edition Winter 1976 Addenda. However, in accordance with the General Construction Specification G-62, the WBNP Code of Record is ASME Section III 1971 edition through 1973 Summer Addenda.

(ii) Vendor's certification documentation indicated that fourteen flanges with Heat Number HH773 were certified. The NCR listed only one installation where Heat Number HH773 was installed. TVA CMTR indicated upgrading of all material with Heat Number HH773 to ASME Section III Class 2. The CMTR does not indicate whether the rest of the fittings were in stock at WBNP warehouse, or if the fittings were utilized in ASME Section III Class 2 WBNP System installations, in which case the NCR should have been revised to include the corresponding installation information and necessary information relative to corrective actions taken before the closure of the subject NCR.

16. NCR 5964 Revision 2, dated 2/27/85, was issued to document, evaluate, and provide necessary corrective action to upgrade ASTM material to ASME. A 3/4" flange, (S/W, 150#, R.F,) ASTM A182 F304, Heat Number HH669, (Weld 2-072B-T012-04,) was installed in an ASME Section III Class 2. This material at the time of installation did not conform to all of the requirements of ASME Section III Class 2. The NCR disposition was to upgrade the material to TVA Class B/ASME Class 2 in accordance with WBNP QCI 1.46 and the NCR was closed after a TVA CMTR was prepared and approved on 3/12/85. A review of the applicable documentation indicated a similar inadequacy documented in Findings 14.(i) and 15.(ii).

17. NCR 5087, Revision 2, dated 3/21/85 states that: "ASME code material with identical Heat Numbers and descriptions for Class 1 and also other code classes were installed in Class 1 Systems". The NCR lists 25 Heat Numbers certified to different