CONCERN NO: 11-85-406-001

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Page 1 of 6

CONCERN: Unauthorized access/alteration of Weld Information Management System (WIMS) computer information.

INVESTIGATION PERFORMED BY: C. Wilson, T. Kulp, B. Jones, O. Thero, K. Vedlemeni DETAILS:

This concern is identical to the concern expressed in EX-85-003-003 that a welding engineer obtained the access codes of a welding QC inspector and utilized those access codes to make unauthorized changes. A 5/04/84 informal memo from welding QC (WQC) supervisor, to the Assistant Quality Manager at WBNP references another memo dated 4/20/84. The 4/20/84 memo outlines a cronological account of the access control concerns and the initial investigation results.

The 5/4/84 memo defines the following findings: Computer transactions utilizing the WGC Inspector's access codes between 2/23/84 and 3/28/84 totaled 999 (it is not clear why this period of time was selected). One hundred seventy-one (171) of the 999 were at terminals other than WOC's. Of the 171, 62 placed welds in "X" status (apparently means the welds were cut out) and each of these were superseded by identifiers with higher cut suffixes (i.e. when 1-070A T 008-12-0-0 is changed to 1-070A T 008 12-1-0). The other 109 transactions were to update test activities and/or change the weld status to "W" (weld complete with This investigation concluded that (1) no deficiencies were WQC). revealed in a detailed examination of all transactions made under the WQC Inspector's codes outside WQC unit, (2) the use of those codes was for the purpose of expediting the job completion (no evidence of intent to do harm to the system), (3) Those codes were changed 4/19/84 and no future unauthorized use is expected (4)written instructions on access codes were issued to WEU personnel and (5)subsequently, written instructions were issued on computer terminal use by WEU personnel. Reference was made in the above 5/4/84 memo, to a confidencial (administratively) memo which would address other findings in the unauthorized access concern.

On 6/21/85, ERT Investigators interviewed the WQC Supervisor at his office. He indicated the issue about the individual who accessed the computer was "becoming a personal vendetta" and the investigation actually diacovered that no harm was done since the weld records involved in the unauthorized access were already completed and could not be changed. This welding engineer was a "worksholic" and not doing anything but updating the welding engineering status after WQC had accepted the activity. When asked by ERT Investigators the effect this whole incident (including the investigation and lack of disciplinary action) had upon employees confidence in TVA management, it was stated that there was more personality conflicts then any particular problem with wrongdoing on the part of the offending individual towards the individual who reported the incident.

CONCERN NO: IN-85-406-001

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Page 2 of 6

DETAILS: (continued)

The ERT requested the administratively confidential memo he had referred to in his memo dated 5/4/84 to the Assistant Quality Manager. He advised that he could not locate such a memo but had a note in his log (personal notes) for 5/7/84 that he was to write the memo, 5/4/85 which was a Friday and his note is the only record of that memo. He explained that he had checked his files and his supervisor's, but had apparently lost the memo of 5/4/84.

The Knoxville Computer Group was contacted and it was learned that an investigation had been conducted during 4/84 of an incident of illegal computer access by a welding engineer at Watts Bar Nuclear Plant using a Weld QC Inspector's access numbers. This investigation was handled by the Welding QC Supervisor who was supposed to have reported any significant results of the investigation. No report on this investigation was received by the Computer Security Unit in Knoxville.

Interview of WEU, Project Support Supervisor;

ERT Investigators interviewed the Welding Unit Project Support Supervisor at the Welding Engineering Unit (WEU), Feb Shop, Watts Bar Nuclear Plant regarding his knowledge of or involvement in the unauthorized access of information.

He provided the following information: He participated in the creation and development of the WMIS (Weld Management Information System) when assigned to the Welding Quality Control Unit, and was familiar with its operation and the method of selection of access codes to the WMIS. He insisted that the system was informational only and nothing more than a monitoring program. He stated that everyone in the Welding Quality Control Unit knew or could know each other's access codes because everyone there was familiar with the method of selecting access codes.

After being promoted to the Welding Unit Project Support Supervisor he used a WGC inspector's access code to the WMIS when he discovered that those responsible for keeping this computerized information current, (namely WGC personnel and vault records personnel) were not doing so.

CONCERN NO: IN-85-406-001

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DETAILS: (continued)

He later realized he was wrong in doing so; but never complained about this failure to update records to the Supervisor of Welding Quality Control Unit. Instead, he chose to use the access code of an Inspector-Welding, Welding Quality Control Unit, to enter the WMIS to change several weld status indicators to X to render 'he information contained therein accurate enough for him to use the WMIS. He could have gone to WOC instead of using the access code but felt that everyone in the Welding GC Unit knew that WGC was slow in changing welds status notations to that of "X", and he personally knew of no apecific rule against taking the action that he did at the time he did it.

Not only did he cite the slowness of WQC's updating of weld status records as the reason for his entry into the system, he also stated that there was some lost documentation reported in NCR 5512. He stated that several records needed to be put in an "X" status.

He repeated his assertion that the "vault record" was the most important document and that he didn't understand why anyone was concerned with alteration of information in the WMIS.

He admitted to the WOC Supervisor that he had done wrong or exerci ad poor judgement in using a WOC access code. He further indicates he was "counseled" on the violation for unauthorized access to the WMIS computer through he claims no specific policy on that violation was in effect.

He insisted that this matter did not involve a quality issue.

He indicated that they could provide ERT with copies of NCR 5512, NCR 5459 and 29 weld records which were lost and were the subject of these NCRs. He contends that WQC would send Op-sheets and keep copies so they could do the "W" statusing later.

CONCERN NO: IN-85-406-001

Page 4 of 6

DETAILS: (continued)

Information from WQC Inspector:

ERT Investigators learned that the WQC inspector whose WMIS access codes had been used for the unauthorized entry into the WQC computer information had called the WEU office at WBNP on 4/17/84 after he discovered through the computer people in Chattenoogs that his WMIS access codes had been used to gain access on a computer terminal in WEU. He was told that the welding engineer was on that terminal. He talked with that welding engineer on the phone and was given an excuse for the fact that he was using the WMIS system via a WQC's access codes.

The WQC inspector further indicated that he was unable to determine the extent to which the welding engineer had used the WMIS system in using his codes. He does know that he changed his access codes after that date (4/17/84).

Review of Quality Issue:

On 6/26/85 at about 1:30 p.m., ERT Investigator learned that the dates of 4/3/84 and 4/5/84 were supposed to have been the dates when WEU computers were being used to "buy-off" welds utilizing WQC access codes.

WMIS system transactions from 12/1/83 until 4/17/85 (when the unauthorized access was caught) were obtained by ERT.

WHIS Computer transactions for the following dates under the WGC access codes which had been used at a WEU computer terminal were examined:

> 4/03/85 4/05/85 4/13/85

On 4/03/85 weld record #1-063A-D074-01E was statused "W" and hold points were removed for visual and penetrant testing at computer terminal C154 utilizing a WQC inspector's codes in the WMIS. WQC had completed the inspection of this weld repair on 3/30/84. Final acceptance by WEU was also made on 4/03/85. The access to WMIS was done to show the WQC completed and statused accordingly. No quality issue is reised mince the welding operation sheet is complete with no elteration.

CONCERN NO: IN-85-406-001

Page 5 of 6

DETAILS: (continued)

On 4/05/84, the weld record #1-070A-T-0080-12-0-0 is revised to "X" thus showing that that weld had been cut out and a higher suffix had already been given to the record # 1-07A-T-008-12-1-0 on operation sheet number 1-70F-501-14C1. No quality issue is raised on this transaction since that weld had been cut out.

After obtaining copies of NCRs 5459, 5512 and 5613 as well as the 29 lost welding operation sheets involved in NCR 5512, these copies were reviewed for any quality problems which could have been caused by the transactions made on 4/13/84 at a welding engineering unit computer terminal utilizing a WQC inspector's access code. Although no such quality problems could be directly linked to the unauthorized access of the WQC computer in the WMIS, some discrepancies were identified:

- a. The corrective action for the new welding operation sheets set forth in NCR 5512 required that the welds be reinspected "to the original NDE requirements and record all relevant data (heat/serial numbers, welder stencils, etc.)." In most of the 29 welding operation sheets the NCR 5512 is referenced by WQC without completing the recommended corrective action and the NCR 5512 itself does not address in its closure how these 29 welds were actually closed by WEU. Therefore, NCR 5512 is not properly closed.
- b. WGC was working to verbal directions from WEU in view of the fact that 17 welding operation sheats out of the 29 refer to NCR 5512 prior to the date the NCR was initialed on 4/6/84.
- c. Four of the 29 welding operation sheets reflect ANI hold points on 4/13/84 which were not reinspected. These four ANI hold points were placed on the welds because of the lack of welder's identification. In spite of these ANI hold points, WEU signed off its final acceptance on 4/13/84. This occured after the unauthorized access from the WEU computer terminal using the WOC inspector's access codes.

Notwithstanding these identified discrepancies, the effect on quality by virtue of this unauthorized access cannot be directly established. At the very least, though, the unauthorized access of the WMIS computer by WEU is a tampering with the tool by which WOC tracks the quality documents. These documents must be correct and complete on their own without any requirement for the WMIS to correspond.

CONCERN NO: IN-85-406-001

Page 6 of 6

DETAILS: (continued)

CONCLUSION:

The situation with the unauthorized access of the WMIS 18 substantiated. ERT Investigators have learned that the real concern herein is the treatment of the welding engineer who breached the computer security of the WHIS. That welding engineer received a letter of commendation from the WEU supervisor just two days after his unsuthorized WMIS computer access was discovered. Subordinates are aware of this occurrence and have expressed to ERT investigators their beliefs they would have been severely displined had they been caught doing the same thing the welding engineer did. Instead of any serious discipline, that welding engineer has been promoted. They furnish information to the effect that this welding engineer, while accessing WHIS unauthorized, simply performed clean-up of computer information which was nothing more than clerical duties. This welding engineer allegedly makes a practice of performing clerical duties on overtime while ordering subordinates to refrain from doing the same.

Prepared By Charles C. alary 7/8/85 Date Reviewed By Of There 7/8/45

	PRELAWAUNTER :
•	REQUEST FOR REPORTABILITY EVALUATION
	$V_{2} = V_{2} = V_{2} = \frac{1}{2} V_{2} = \frac{1}$
Keq	(ERT Concern No.) (ID No., if reported)
Ide	ntification of Item Involved: WELD STATUS RECORDS
	(Nomenclature, systèm, manuf., SN, Model, etc.)
Des	cription of Problem (Attach related documents, photos, sketches, etc.)
MAN	AGER ACCESSED COMPUTER TO CHANGE WELD STATUS RECORDS USING ANOTHER PERSON'S .
ACC	ESS CODE TO CHANGE THE OC HOLD POINT STATUS.
-	
Rea	ason for Reportability: (Use supplemental sheets if necessary)
	plant at any time throughout the expected lifetime of the plant.
	No X Yes If Yes, Explain:
	No X Yes If Yes, Explain:
	Plant at any time throughout the expected lifetime of the plant. No X Yes If Yes, Explain:
в.	Plant at any time throughout the expected lifetime of the plant. No X Yes If Yes, Explain:
в.	AND This deficiency represents a significant breakdown in any portion of the qualitassurance program conducted in accordance with the requirements of Appendix 5. NoYesXIf Yes, Explain:
в.	AND This deficiency represents a significant breakdown in any portion of the qualitassurance program conducted in accordance with the requirements of Appendix 5. NoYesXIf Yes, Explain:WCC_INSPECTORS ARE WORKING TO NEU VERBAL DIRECTIVES AND ARE NOT INSPECTING IN COMPLIANCE WITH CORRECTIVE ACTION
в.	AND AND This deficiency represents a significant breakdown in any portion of the qualitassurance program conducted in accordance with the requirements of Appendix 5. No Yes X If Yes, Explain: WGC INSPECTORS ARE WORKING TO WEU VERBAL DIRECTIVES AND ARE NOT INSPECTING IN COMPLIANCE WITH CORRECTIVE ACTION APPROVED IN NCR 5512.
в.	AND This deficiency represents a significant breakdown in any portion of the qualitassurance program conducted in accordance with the requirements of Appendix 5. No Yes X If Yes, Explain:
в.	No X Yes If Yes, Explain:
в.	Plant at any time throughout the expected lifetime of the plant. No X Yes If Yes, Explain:
в.	No _X_YesIf Yes, Explain:
в.	Plant at any time throughout the expected lifetime of the plant. No X Yes If Yes, Explain:
в.	No _X_YesIf Yes, Explain:

:

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

No X Yes If Yes, Explain:

OR

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

No X Yes If Yes, Explain:

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

This Condition was Identified by:

ERT Group Manager

oject Manager

365-4464 Phone Ext.

Page of

365-44/14

Acknowledgment of receipt by NSRS

Date 7/9/85 Time 1206

ERT Form M

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50078

120

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

Priority: 1

Concern # IN-85-795-001

Category: 52

Supervisor Notified: XXYES NO

Confidentiality:N/A_YESN/A_NO (ISH)

Supervisor Motified. Antis ____

NUCLEAR SAFETY RELATED Yes

Concern:

Compression fittings on instrument tubing are not installed per vendor instructions.

MANAGER. ERT

NSRS has assigned responsibility for investigation of the above concern to: ERT per telecon with Jerry Smith 7/16/85 ERT

NSRS/ERT

NSRS

OTHERS (SPECIFY)

Page 1 of 4

CONCERN NO: IN-85-795-001: IN-85-795-002

CONCERN: 001- Compression fittings on instrument tubing are not installed per vendor instructions.

002- No hydro test is performed on tubing from the drain valve to the closed drain. If the ferrule is reversed in the compression fitting the tubing will leak radioactive fluid onto the floor.

Investigation Performed by: Roger A. Bird

Details:

Personnel Contacted: Confidential

Findings:

IN-85-795-001

This concern was substantiated. One hundred and seven compression fitting joints were disassembled and inspected to the vendor installation criteria, forty eight were acceptable.

The fittings examined were selected from instrument lines and drains in Unit 1 and Unit 2. (Not subjected to hydro testing)

A tabulation of discrepencies is detailed in Table 1.

Page 2 of 4

Concern No: IN-85-795-001; IN-85-792-002

Details: (continued)

Categories	<pre>% of Total Numbers</pre>	<pre># of Items per Category</pre>	% of Defects
Not deburred	21%	22	37%
Tube not bottomed out	21%	23	38%
Nut doesn't cover threads (Imperial/Eastman)	98	10	17%
Ferrule installed in reversed direction	3%	3	5%
No ferrule installed	1%	1	28
Unidentified or field fabricated ferrule	1%	1	28
Total Defects Total Joints		60 107	

TABLE 1

IN-85-795-002

This concern is comprised of two elements, one concerning the hydrotesting of drain lines, the other dealing with leaks of contaminated water due to improper installation of compression fittings.

The first portion of the concern is not substantiated. No requirement exists to hydrotest drain lines (Non-ASME Class).

The second portion of the concern is substantiated. The numbers of discrepant joints examined verified the probability of leaking radioactive contaminants onto the floor if the discrepant connections were not corrected.

Page 3 of 4

Concern No: In-85-795-001; IN-85-795-002

Details: (continued)

Observations:

1) The drain lines appear to have been installed to the drain header in Unit 1, then the header was moved to achieve acceptable slope causing the drain lines to be in cold spring.

2) Hanger clip to drain header in Reactor Building Unit 1 is missing; 1-L-561 lines 8 & 9.

3) Several drain isolation valves were loose on the mounting panels. The retaining nuts were not tightened.

4) The ferrule installed at panel 1-L-559-3 drain appears to have been field fabricated (Parker fitting).

5) Many of the Imperial-Eastman fittings on the instrument panels are not installed with the nut covering the threads.

Root Cause Evaluation:

Craft personnel are not trained in the proper method of installing compression fittings such as:

- 1. tube cuttings;
- deburring tube ends;
- Bottoming tube in body of fittings;
 - 4. turn of the nut method for tightening and,
 - scribing cr marking nut and tube for proper initial installation and re-connection of the fitting to prevent over-torquing.

The lack of training is reflected in the craft responses to process questions and inconsistent compression fitting installations inspected in the field.

The procedure "Installation of Tubing Instrumentation Lines", Revision O, was not issued until 5-10-85. This procedure does not describe the techniques to install compression fittings, nor does it reference the vendor instructions.

Page 4 of 4

Concern No: IN-85-795-001; IN-85-795-002

Details: (continued)

The corresponding Quality Control Procedure does not require inspection of the compression fittings either in process or after installation.

The Hydro static test performed verifies that the joint will not leak at that point in time. It does not verify that the joint is correctly installed. Vibration in the line due to operation, seismic events, or thermal expansion/contraction may cause the joint to fail over a period of time when the connection is not performed to design requirements.

Prepared by Reviewed by



1.	Request	No.	IN-85-795-001	_
			(ERT Concern No.)	

(ID No., if reported)

2. Identification of Item Involved:

(Nomenclature, system, manuf., SN, Model, etc.)

Description of Problem (Attach related documents, photos, sketches, etc.)
 Compression fittings on instrument tubing are not installed per vendor

instructions.

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

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

NO YES X If Yes, Explain: If couplings fail, then loss of

parameter indications could occur.

AND

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

No Yes X If Yes, Explain: Inadequate procedures and/or training

to vendor installation requirements.

OR

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

No X Yes ____ If Yes, Explain: _____

ERT Form M

Page 2 of 2

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

No Yes X If Yes, Explain: Fittings as installed are not per

design qualified for seismic conditions.

OR

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

No X Yes If Yes, Explain;

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

This Condition was Identified by:

Group Manager

<u>765-4464</u> Phone Ext.

ERT Project Manager

365-4414 Phone Ext.

Acknowledgment of receipt by NSRS

Time 15/2 Date 8/

	(ERT Concern No.) (ID NO., IT reported)
len	(Nomenclature, system, manuf., SN, Model,
esc	ription of Problem (Attach related documents, photos, sketches, etc.)
o b	ydrotest is performed or drain lines. Incorrect installation of
err	ules could cause leaks of radioactive fluid from the drain lines.
eas	on for Reportability: (Use supplemental sheets if necessary)
	This design or construction deficiency, were it to have remained
	of the nuclear power plant at any time throughout the expected
	lifetime of the plant.
	NO X YES If Yes, Explain:
	AND
в.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B.
в.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain:
в.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain:
8.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain:
В.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain:
в.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain: OR
в.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain: OR This deficiency represents a <u>significant</u> deficiency in final design
в.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain: OR This deficiency represents a <u>significant</u> deficiency in final design approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report of construction permit.
в.	AND This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requi of Appendix B. No X Yes If Yes, Explain: OR This deficiency represents a <u>significant</u> deficiency in final design approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report of construction permit.

FINAL

Page 2 of 2

REQUEST FOR REPORTABILITY EVALUATION

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

No X Yes If Yes, Explain:

OR E. This deficiency represents a significant deviation from performance specifications which will require extensive evaluation, extensive redesign, or extensive repair to establish the adequacy of the structure, system, or component to perform its intended safety function. No X Yes ____ If Yes, Explain; _____ IF ITEM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CARRY THIS REQUEST AND SUPPORTING DOCUMENTATION TO NSRS.

This Condition was Identified by:

ERT Group Manager 365-4464 Phone Ext.

roject Manager

365-4414

Acknowledgment of receipt by NSRS

_____ Date <u>6/7/85</u> Time 15/2

EMPLOYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS

TRANSMITTAL NUMBER T50078

for

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

Priority: 1

1 .

Concern # IN-85-795-002

NUCLEAR SAFETY RELATED Ves

Confidentiality: N/AYES N/ANO (ISH)

Category: 52

Supervisor Notified: XXYES NO

Concern:

No hydro test is performed on tubing from the drain value to the closed drain. If the ferrule is reversed, the tubing will leak radioactive fluid onto the floor.

MANAGER, ERT

NSRS has assigned responsibility for investigation of the above concern to: ERT per telecon with Jerry Smith 7/16/85 ERT

NSRS/ERT

NSRS ____

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OTHERS (SPECITY)

Page 1 of 4

CONCERN NO: IN-85-795-001; IN-85-795-002

CONCERN: 001- Compression fittings on instrument tubing are not installed per vendor instructions. 002- No hydro test is performed on tubing from the drain valve to the closed drain. If the ferrule is reversed in the compression fitting the tubing will leak radioactive fluid onto the floor.

Investigation Performed by: Roger A. Bird

Details:

Personnel Contacted: Confidential

Findings:

IN-85-795-001

This concern was substantiated. One hundred and seven compression fitting joints were disassembled and inspected to the vendor installation criteria, forty eight were acceptable.

The fittings examined were selected from instrument lines and drains in Unit 1 and Unit 2. (Not subjected to hydro testing)

A tabulation of discrepencies is detailed in Table 1.

Page 2 of 4

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Concern No: IN-85-795-001; IN-85-792-002

Details: (continued)

Categories	<pre>% of Total Numbers</pre>	<pre># of Items per Category</pre>	% of Defects
Not deburred	218	22	378
Tube not bottomed out	21%	- 23	38%
Nut doesn't cover threads (Imperial/Eastman)	9%	10	178
Ferrule installed in reversed direction	38	3	5%
No ferrule installed	18	1	21
Unidentified or field fabricated ferrule	18	· <u>1</u> °	28
Total Defects Total Joints		60 107	

TABLE 1

IN-85-795-002

This concern is comprised of two elements, one concerning the hydrotesting of drain lines, the other dealing with leaks of contaminated water due to improper installation of compression fittings.

The first portion of the concern is not substantiated. No requirement exists to hydrotest drain lines (Non-ASME Class).

The second portion of the concern is substantiated. The numbers of discrepant joints examined verified the probability of leaking radioactive contaminants onto the floor if the discrepant connections were not corrected.

Page 3 of 4

Concern No: In-85-795-001; IN-85-795-002

Details: (continued)

Observations:

The drain lines appear to have been installed to the drain 1) header in Unit 1, then the header was moved to achieve acceptable slope causing the drain lines to be in cold spring.

2) Hanger clip to drain header in Reactor Building Unit 1 is missing; 1-L-561 lines 8 & 9.

 Several drain isolation valves were loose on the mounting panels. The retaining nuts were not tightened.

The ferrule installed at panel 1-L-559-3 drain appears to 4) have been field fabricated (Parker fitting).

5) Many of the Imperial-Eastman fittings on the instrument panels are not installed with the nut covering the threads.

Root Cause Evaluation:

Craft personnel are not trained in the proper method of installing compression fittings such as:

- 1. tube cuttings;
- deburring tube ends;
- bottoming tube in body of fittings;
 turn of the nut method for tightening and,
- 5. scribing or marking nut and tube for proper initial installation and re-connection of the fitting to prevent over-torquing.

The lack of training is reflected in the craft responses to process questions and inconsistent compression fitting installations inspected in the field.

The procedure "Installation of Tubing Instrumentation Lines", Revision O, was not issued until 5-10-85. This procedure does not describe the techniques to install compression fittings, nor does it reference the vendor instructions.

Page 4 of 4

Concern No: IN-85-795-001; IN-85-795-002

Details: (continued)

The corresponding Quality Control Procedure does not require inspection of the compression fittings either in process or after installation.

The Hydro static test performed verifies that the joint will not leak at that point in time. It does not verify that the joint is correctly installed. Vibration in the line due to operation, seismic events, or thermal expansion/contraction may cause the joint to fail over a period of time when the connection is not performed to design requirements.

U.Bh Prepared by Reviewed by

1

OR

<pre>Request No. <u>IN-85-795-001</u> (ID No., if reported) Identification of Item Involved:</pre>		REQUEST FOR REPORTABILITY EVALUATION
<pre>Identification of Item Involved:</pre>	Requ	test No. IN-85-795-001 (ERT Concern No.) (ID No., if reported)
Description of Problem (Attach related documents, photos, sketches, etc.) Compression fittings on instrument tubing are not installed per vendor instructions. Reason for Reportability: (Use supplemental sheets if necessary) A. This design or construction deficiency, were it to have remained uncirrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant. NOYES X_ If Yes, Explain:If couplings fail, then loss of parameter indications could occur. AND B. This deficiency represents a significant to vendor installation requirements. OB C. This deficiency represents a significant deficiency in final design = approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report or construction permit. No X_YesIf Yes, Explain:	Ider	tification of Item Involved: (Nomenclature, system, manuf., SN, Model, e
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No X Yes If Yes, Explain:	c	This deficiency represents a <u>significant</u> deficiency in final design a approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report or construction permit.
		No X Yes If Yes, Explain:

ERT Form M

Page 2 of 2

REQUEST FOR REPORTABILITY EVALUATION

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

No Yes X If Yes, Explain: Fittings as installed are not per

design qualified for seismic conditions.

OR.

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

No Y Yes ____ If Yes, Explain;

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

This Condition was Identified by:

Group Manager

ERT Project Manager

S65-4414 Phone Ext.

Acknowledgment of receipt by NSRS

Tim 15/2 Date 2

FINAL

leques	st No. IN-85-795-002 (ID No., if reported)	
	(ERL Concern Mar)	
Ident	ification of Item Involved:	et
Descr	ription of Problem (Attach related documents, photos, sketches, etc.)	
No h;	ydrotest is performed or drain lines. Incorrect installation of	
fern	ules could cause leaks of radioactive fluid from the drain lines.	-
	2 	
Reas	on for Reportability: (Use supplemental sheets if necessary)	
٨.	This design or construction deficiency, were it to have remained uncorrected, could have affected adversely the safety of operations	
	of the nuclear power plant at any time throughout the exposite lifetime of the plant.	
	NO X YES If Yes, Explain:	
	AND	
в.	This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requ of Appendix B.	of ire
	No X Yes If Yes, Explain:	
	OR This deficiency represents a significant deficiency in final design does not be a significant deficiency in final deficience deficienc	
Ľ	approved and released for construction such that the design does in conform to the criteria bases stated in the safety analysis report construction permit.	or
	No X Yes If Yes, Explain:	
,		
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Page 2 of 2

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

No X Yes ___ If Yes, Explain:

OR

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

No X Yes ___ If Yes, Explain;

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

This Condition was Identified by:

ERT Group Manager

<u>365-4464</u> Phone Ext.

Project Manager

365-4414 Phone Ext.

Acknowledgment of receipt by NSRS

Date 6/7/85 Time 1512

EMPLCYEE CONCERN ASSIGNMENT REQUEST

TO: Director - NSRS TRANSMITTAL NUMBER T50018

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

Priority:1 Concern # PH-85-018-001

Category:59 Confidentiality:___YES ___NO (I & H)

Supervisor Nctified: ____YES ___NO NUCLEAR SAFETY RELATED YES

CONCERN: MANAGEMENT ORALLY INSTRUCTED QA AUDITORS NCT TO WRITE AUDIT FINDINGS IN CERTAIN AREAS INCLUDING THE QA PROGRAM. THIS OCCURRED IN JANUARY 1985 AND IS STILL CONTINUING. (NAME OF MANAGER IS KNOWN TO QTC) THIS INVOLVED WATTS BAR.

Millelan 4

FER

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

ERT ,/

. .

NSRS/ERT____

NSRS_____

OTHERS (SPECIFY)

Page 1 of2

CONCERN NO: PH-85-018-001

CONCERN: Management orally instructed QA auditors not to write audit findings in certain areas including QA Program. This occurred in January 1985 and is still continuing (Name of Manager known to QTC). This involved Watts Bar.

INVESTIGATION PERFORMED BY: C. Wilson, R. Jones

DETAILS:

Persons Contacted: Confidential

No specifics as to date, time and spoken instructions are available to further clarify this concern. No evidence was found to establish that any responsible management gave any instructions to QA Auditors not to write audit findings

However, the review of QA program procedures was being done early in 1985 and "revision requests" were written in lieu of "deviations". This may have been misconstrued as some suppression of findings although it is not uncommon practice for reviewing internal and implementing documents.

The transfer of safety-related systems from the construction to the nuclear-power organization also transfers responsibility for auditing such systems from Construction QA to Nuclear Power QA. This has occurred at Watts Barr NP with all of the Unit #1 Systems. It may have been misinterpreted by some observers as suppression of auditing but it is a transfer of the auditing responsibility on completed systems

Page 2 of 2

CONCERN NO: PH-85-018-001

DETAILS: (continued)

During the investigation it was determined that other areas of this Audit Program should be addressed; Reference PH-85-018-X01. Basically, final audits involving systems being turned over to Nuclear Power and Audits pertaining to document control activities should be examined. Another area to be explored is the statements from most of the examiners interviewed that since being transferred from OQA to the Office of Construction Management their freedom of activities have been curtailed.

Although the specifics of time and incidents of suppression of audits findings cannot be substantiated, a concern about the programmitic integrity of the WBNP QA Audit Program has been raised. This concern will need to be investigated as PH-85-018-X01. This concern involves the independence of the auditing of safety-related construction activities

Q-85-018-001-01 "WENT AUDIT PLOCENY"

NOTE: NSRS IG CONCURS WITH THE NEED TO INVESTIGATE THE WENP QA AUDIT PROGRAM.

OTC 15 DIRECTED TO PERFORM SUCH &

DOCUMENT RESULTS IN REPORT \$+ 25-018- ×01.

1/10/85

Report Reviewed & Accepted: = 1/10/85 NSAS

Prepared by Maken For 7/1/85 date date date date

EMPLOYEE CONCERN ASSIGNMENT REQUEST

To: Director - NSRS TRANSMITTAL NUMBER T50008

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

Priority: 1 Concern # IN-85-069-001

Category: A20 Confidentiality: X YES NO (I & H)

Supervisor Notified: _X_YES ___NO

.....

CONCERN: PIPE CLAMPS ON SUPPORTS THAT HAD APPEARED TO HAVE BEEN INSPECTED BUT WERE MISSING NUTS OR THE BOLTS WERE NOT EVEN TURNED TO HAND TIGHTNESS. THIS SITUATION WAS NOTICED IN THE AUXILIARY BUILDING EL 737 & 757 BETWEEN COLUMN LINES AL THROUGH ALS EAST WEST & R-V NORTH SOUTH

fer.

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

ERT	
NSRS/ERT	· · · · ·
NSRS	
OTHERS (SPECIFY)	1
	Marine 10/4/35
	· / DATE

UNITED STATES GOVERNMENT Memorandum

· VA 64 (05-8-45)

I-W5-237

TENNESSEE VALLEY AUTHORITY

		1
то :	R. M. Pierce, Project Manager, 9-169 SP-K	JL 12 '85
FROM : DATE :	K. W. Whitt, Director, Nuclear Safety Review Staff, E7B31 C-K July 10, 1985	Projectifitanaper & Orico Watts Bar Wiccoar Baci
SUBJECT:	NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL	Conve RMF UNX CONC
	Transmitted herein is NSRS Report No. IN-85-069-001	
	Subject Invalidated Appendix R Support Inspections	<u> </u>
	Concern No IN-85-069-001	
	and associated recommendations for your action/disposition.	Electro.
ł	It is requested that you respond to this report and the attached mendations by <u>July 26, 1985</u> . Should you have any qu please contact <u>M. A. Harrison</u> at telephone <u>6328</u> Recommend Reportability Determination: Yes <u>No</u> <u>Math.c.</u> Difector, NSRS/Desi Cc: W. F. Willis, E12B16 C-K (6) W. T. Cottle, WBN	gnee
	Copy and Return	
	To: K. W. Whitt, Director of Nuclear Safety Review Staff, E7E	331 С-К
	From: R. M. Pierce, Project Manager, Watts Bar Nuclear Plant, 9-	169 SB-K
	Date: July 12, 1985	
4	I hereby acknowledge receipt of NSRS Report No. IN-85-06	9-001
	Subject Invalidated Appendix R Support Inspections	
	for action/disposition.	

Durie Signature

7/12/85 Date

(Please copy entire page for return)

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

CONCERN NO: IN-85-069-001

Page 1 of 1

CONCERN: Pipe clamps on supports that had appeared to have been inspected, but were missing nuts or the bolts were not even turned to hand tightness. Location in Auxilliary Building, elevation 772', column A1 through A15 and R-V lines. Item is Fire Protection Appendix R lines.

INVESTIGATION PERFORMED BY: Wm. R. Pickering

DETAILS:

1.

Reference Drawings & Doo	uments: 47W491-86 Revision	0	
	47A050-1J3 Revision	1	
	47A053-10A Revision	9	
	47A050-1G Revision	5	
	47A053-1A Revision	11	

FINDINGS: Substantiated

A field welkdown did not verify the existence of missing nuts or loose bolts; however, numerous bolted connections previously inspected as evidenced by the application of torque seel in accordance with GCP 4.23-8, revision 7, section 6.8.5, had broken torque seel or no torque seel indicating the connections had been worked after final inspection or had not been inspected.

CORRECTIVE ACTION: Implement a welkdown program of Fire Protection Appendix R lines to determine the extent of indeterminate installations and document the adverse results on a nonconformance report. Implement corrective action.

Prepared By Dille Chin 7.0.95 Date Reviewed By Of These 7/0/15



Request No. <u>IN-85-069-001</u>
(ERT Concern No.) (ID No., if reported)
identification of Item Involved: Fire Protection Appendix R Line Supports (Nomenclature, system, manuf., SN, Model, etc.)
Description of Problem (Attach related documents, photos, sketches, etc.)
connections supporting the Fire Protection Appendix P lines located at
elevation 772' columns Al-al5 and R-V lines with broken torque seal or no torque seal applied.
eason for Reportability: (Use supplemental sheets if necessary)
<pre>. This design of construction deficiency, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant. No X Yes If Yes, Explain:</pre>
AND
This deficiency represents a <u>significant</u> breakdown in any portion of the quality assurance program conducted in accordance with the requirements of Appendix B.
No <u>X</u> Yes If Yes, Explain:
OR

OR

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REQUEST FOR REPORTABILITY EVALUATION Page 2 of 2

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0	R
E. T s r s	his deficiency represents a <u>significant</u> deviation from performance peci ications which will require <u>extensive</u> evaluation, <u>extensive</u> edesign, or <u>extensive</u> repair to establish the adequacy of the structure ystem, or component to perform its intended safety function.
N	o <u>x</u> Yés If Yes, Explain:
_	
IF IT	EM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CAP
IF IT THIS	EM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CAP REQUEST AND SUPPORTING DOCUMENTATION TO NSRS.
IF IT THIS This	EM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CAP REQUEST AND SUPPORTING DOCUMENTATION TO NSRS. Condition was Identified by: Offices ERT Group Manager 365-4464 Phone Ext.
IF IT THIS This	EM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CAP REQUEST AND SUPPORTING DOCUMENTATION TO NSRS. Condition was Identified by: Office 365-4464 ERT Group Manager Phone Ext.
IF IT THIS	EM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CAP REQUEST AND SUPPORTING DOCUMENTATION TO NSRS. Condition was Identified by: Office 365-4464 ERT Group Manager Phone Ext. ERT Project Manager Phone Ext.

1

EMPLOYEE CONCERN ASSIGNMENT REQUEST

To: Director - NSRS

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

Priority: 1

Concern # IN-85-106-001

150

Category: A03

COLCERN: ON THE MAIN STEAM SYSTEM (UNIT # 1), SOME HANGERS WERE DESIGNED SO THAT THEY PUT FORCES/MCMENTS BACK INTO THE PIPE TO BE TAKEN OUT BY SUPPORTS ADJACENT TO THEM. THE ADJACENT SUPPORTS WERE NOT EVALUATED FOR THESE INCREASES IN LOADS. NO ADDITIONAL CONTACT REQUIRED

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

ERT

NSRS/ERT

NSRS

OTHERS (SPECIFY)

CONCERN NO: IN-85-106-001

100

Page 1 of 3

CONCERN: Main Steam System, Unit #1, Reactor Bldg, Pipe Supports were designed such that they put forces and moments back into the pipe; to be taken out by adjacent supports. The adjacent supports were not evaluated for these additional loads.

INVESTIGATION	
PERFORMED BY:	T.E. HOUGH
	A. REDDY
	C.C. WILSON

DETAILS:

I. PERSONNEL CONTACTED: Confidential

II. CONCERN IDENTIFICATION:

During preliminary investigation, the concern seemed contrary to the purpose of pipe support design, i.e. resolving given loads to a zero resultant. Further contact with the C/I was initiated with the following expanded data.

• The pipe supports in question are on the 32" Main Steam lines in the Reactor Bldg., but no specific support could be identified as the designs were done approximately 1 1/2 years ago.

• The problem came about when the pipe stress department would provide the designers loads that could not be resolved into a resultant of "Zero". Also, this information (unresolved loads) was fed back to the pipe stress department and included in adjacent supports. (seemed to contradict the original concern)

 When the feedback cycle occured, there were supports that exceeded project specifications on loading.

 Specific supports which were overloaded could not be identified.

FILE IN-85-106-001 Date: 6/14/85

Page 2 of 3

DETAILS:

 C/I stated that the only way to find the suspect supports, would be to conduct a review of all the design calculations.

III. INVESTIGATIVE ACTIONS

. . .

Copies of all Main Steam atress isometrics were obtained.
 (33 ISO's)

• The scope was narrowed based on the C/I's statement that the suspect supports were in the Unit #1 Reactor Bldg. Four (4) isometrics showing the four Main Steam loops from the S/G's to the reactor bldg penetrations were selected.

• A take-off of all pipe supports including those on the relief headers was done yielding a count of some 75 supports, (8 civil supports).

• On-site O.E., was contacted (6-6-85) and asked to provide copies of all the design Calculations for all 75 supports. (copies were provided 6-11-85)

All engineering design calculation packages were reviewed for the following attributes:

- Accuracy of methmatical calculations (apot check).
- Conservatism of engineering assumptions.
- · Correction of overloaded members.
- Incorporation of "79-14 review" requirements (limited).
- Required checks/reviews conducted.

FILE IN-85-106-001 Date: 6/14/85

Page 3 of 3

DETAILS:

IV. FINDINGS

: 1 :

The results of the review are as follows:

 No discrepancies were identified with respect to mathmatical calculations.

• For conservatism, either the "faulted" load or the "hydro-load" was used in all cases.

 All supports were designed such that the final design did not have any overloaded components or welds.

• Where identified, the "79-14" requirements were incorporated.

All required checks/reviews were conducted.

The concern was not substantiated.

V. OBSERVATIONS

A few (3) supports contained engineering assumptions that, when considered independently, sppear to be invalid. However, upon review of the other (64) supports and their respective assumptions, it was determined that the questionable assumptions were valid and that the uncertainties resulted from the fashion in which the individual engineers stated their assumptions.

VI. RECOMMENDED CORRECTIVE ACTION

NONE

Recrewed + Second: updan 40/05

EMPLOYEE CONCERN ASSIGNMENT REQUEST

To: Director - NSRS TRANSMITTAL NUMBER T50017 ERT has received the Employee concern identified below, and has assigned the indicated category and priority: Priority:1 Concern # IN-85-186-003 Category:52 Confidentiality: X YES NO (I & H) Supervisor Notified: YES X NO NUCLEAR SAFETY RELATED YES Concern: INSULATION ON CONDUIT AND CABLE WRAP IS WRONG IN SELECTED AREAS OF BOTH UNITS, PARTICULARLY ON THE 737' ELEVATION, LINES A-8 & S. PROCEDURE CALLS FOR FIVE LAYERS "PINCHED INSTALLATION". THE TOP LAYER (5TH) SHOULD BE REMOVED AND THE FIRST FOUR LAYERS CHECKED FOR PROCEDURE COMPLIANCE.

GER . ERT

in

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

ERT

NSRS/ERT____

NSRS

OTHERS (SPECIFY)

Tva ++ (05-+-15) UNITED STATES GOVERNMENT

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Memorandum

7- 105-236

	TENI TENI	NESSEE VALLEY AUTHORI	TY
то :	R. M. Pierce, Project Manager, 9-169 SP-K	JEL 1 2 '8	5
FROM :	K. W. Whitt, Director, Nuclear Safety Review St	aff, E7B31 C-K	
DATE :	July 10, 1985	Project Manager s C Watts Bar Nuclaar P	ian)
SUBJECT:	NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPOR	T TRANSMITTAL	2010
	Transmitted herein is NSRS Report NoIN-	-85-186-002	_
	Subject Cable Insulation		
0			-
	and associated recommendations for your action/	disposition.	
-	It is requested that you respond to this report	and the attached recom-	
	mendations by <u>August 2, 1985</u> . Shoul	d you have any questions,	
	please contactM. A. Harrison at tel	ephone6328	
	Recommend Reportability Determination: Yes	No	
	cc: W. F. Willis, E12B16 C-K (6) W. T. Cottle, WBN	tector, NSRS/Designee	•
	Copy and Return		
	To: K. W. Whitt, Director of Nuclear Safety	Review Staff, E7B31 C-K	
	From: R. M. Pierce, Project Manager, Watts Bar	Nuclear Plant, 9-169 SB-K	
	Date: July 12, 1985		
	I hereby acknowledge receipt of NSRS Rep	ort NoIN-85-186-002	
	Subject Cable Insulation		
	for action/disposition.		
		•	

Signature Signature

7/12/85 Date

(Please copy entire page for return)

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

Page 1 of 3

CONCERN NO: IN-85-186-002

CONCERN: Insulation on conduit and cable wrap is wrong in selected areas of both units, particularly on the 737' elevation, lines A8-S. Procedure calls for five layers "pinched installation". The top layer (5th) should be removed and the first four layers checked for procedure compliance.

INVESTIGATION PERFORMED BY: R.A. Bird

DETAILS:

Personnel Contacted:

FINDINGS:

The concern as stated was not substantiated. Two (2) installations were destructively examined; INM3305D at J-Box AB12920, and INM3311D at support AB12930; and were acceptable. Various other installations were noted. Conduit 2-BLC-292-2826A is missing 2 layers of 4" wide strips at ceiling penetration 6'W, 4'S of Al4-S. This appeared to be an isolated case.

The following additional discrepancies were noted:

1. Conduits 1VC2332A violates 1" separation with 1PM64718 at A8-T elev.737'.

2. Cable tray 3B2191 has a cable routed outside tray which is separately wrapped with fire wrap. Located 10'S-10'W of Al2-R elev. 737.

CONCERN NO: IN-85-186-002

DETAILS (continued)

. . . .

3. Stainless steel piping has been insulated with mat M20A and aluminum tape without analysis by engineering design for the chemical content of this material for application on stainless steel.

4. Conduit routed from ceiling penetration AC465 appears to be missing three clamps along S wall near Al3 elev. 737'.

5. The configuration of the Appendix R fire wrap as installed in the plant cannot be established due to the following conditions:

a. The conduit and grounding drawings used for installation of the conduit do not reflect the "as built" conduit locations.

b. The "10 CFR 50, Appendix R cable analysis" drawings do not reflect the "as built" locations of the installed conduit.

C. Previous installations of fire wrap have been deleted from the requirement for fire wrap with a note on the drawing which states, "These conduits are no longer required to be protected with a one hour fire rated barrier. Therefore, no additional wrap is required and that already in place can be removed whenever convenient access is completed." These design changes have allowed incomplete, and that is not possible to directly correlate these installations to the design drawings to determine if the required conduits have been fire wrapped.

This concern (item #5 a-c) has been reported to NSRS via concern IN-85-186-X11.

SPECIFIC EXAMPLES OF VARIANCES:

1. DWG 45W893-5F R/4 shows box 5041 between A5-A6-R. Actual location is between A4-A5-Q in close proximity to Box 72. The Junction Box 72 now encloses conduit from Train A, Train B, and Channel I.

2. Conduits 4I-1PLC3365B,4I-1PLC33366B are shown on dwg 45W826-9 R/44 to be routed E-W at 2'N of S-line then E. Actual installation is: at AlO-R, conduits are routed N to 2'N of S-line then E.

Page 3 of 3

CONCERN NO: IN-85-186-002

DETAILS (continued)

3. Conduits 3I-2PLC2850A, 3I-2PLC2851A are fire wrapped from Junction Box 3465 to ceiling penetration. DWG 45W826-9 R/44 does not require these conduits to be wrapped, nor does it reference a note to delete the wrap.

4. Conduit 3I-MC847B is fire wrapped east of Al2-Q to J-Box at Al0-Q. DWG's 45W826-9 R/44 and 45W893-6A R/4 only require fire wrap W of Al2-Q.

Prepared by K

ogen a Dud 7/6/85 Date There 7/6/8

Reviewed by

Report Recoved & Accepted: Mple -7/10/85

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		30	2 2
			10
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Rec	quest No. IN-85-186-002	
	(ERT Concern No.)	(ID No., if reported)
Ide	entification of Item Involved	: Electrical Conduit Insulation
		(Nomenclature, system, manuf., SN, Model, etc.)
Des	scription of Problem (Attach	related documents, photos, sketches, etc.)
E	Electrical conduit insulation	and cable wrapping is nonconforming; should
	a overland on the total of	
	be overlapped and not pinched	1. Unit 1 & 2. /3/ Elv.
Rea	ason for Reportability: (Use :	supplemental sheets if necessary)
۸.	This design or construction could have affected adverse plant at any time throughout	deficiency, were it to have remained uncorrected, ly the safety of operations of the nuclear power t the expected lifetime of the plant.
	No x Yes If Yes, I	Explain:
	AND	
в.	This deficiency represents a	a significant breakdown in any portion of the quali
	No y Yes If Yes I	in accordance with the requirements of Appendix B.
	OR	
c.	This deficiency represents :	a significant deficiency in first design of another
	and released for construction criteria bases stated in the	on such that the design does not conform to the safety analysis report or construction permit.
	No Yes If Yes, I	Explain:
	OR	

:

Page 2 of 2

	permit or to otherwise establ or component to perform its i	the safety analysis report ish the adequacy of the s intended safety function.	t or construction structure, system,
	No <u>x</u> Yes <u>If Yes</u> , Ex	plain:	
	OP	•	j.
E.	This deficiency represents a speci ications which will req redesign, or <u>extensive</u> repair system, or <u>component</u> to perfo	significant deviation fro uire extensive evaluation to establish the adequac	m performance , <u>extensive</u> y of the structure
	No X Yes If Yes, Ex	rm its intended satety fu plain:	nction.
IF THI	ITEM 4A, AND 4B OR 4C OR 4D O S REQUEST AND SUPPORTING DOCUM	R 4E ARE MARKED "YES", IM ENTATION TO NSRS.	MEDIATELY HAND-CAR
	· Condition	all.	
Thi	s Condition was Identified by:	Of Shere ERT Group Manager	
Th 1	s Condition was Identified by:	Officer ERT Group Manager Manager ERT Project Manager	<u>365-4464</u> Phone Ext. <u>365-4414</u> Phone Ext.
Thi	s Condition was Identified by: edgment of receipt by NSRS	Office ERT Group Manager Manager ERT Project Manager	<u>365-4464</u> Phone Ext. <u>365-4414</u> Phone Ext.
Thi	edgment of receipt by NSRS	Date 7/0/85	<u>365-4464</u> Phone Ext. <u>365-4414</u> Phone Ext. Time <u>1143</u>

:

EMPLOYEE CONCERN ASSIGNMENT REQUEST

To: Director - NSRS

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TRANSMITTAL NUMBER T50008

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

Priority: X1 Concern # IN-85-216-001

Category: A03 Confidentiality: X YES NO (I & H)

Supervisor Notified: ____YES _X_NO

Concern: WELD SEQUENCE DURING REWORK OF STRUCTURAL STEEL MEMBERS IN NORTH & SOUTH MN STM VLV RMS (UNITS 1 & 2) IS NOT IN ACCORDANCE WITH DWG 48W1708-14. WORK PACKAGE(S) ASSOCIATED WITH REWORK DO NOT GIVE A SEQUENCE. POSSIBLE OVERSTRESSING OF WELDS BECAUSE OF OUT OF SEQUENCE WELDING

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

	/
ERI_	~

NSRS/	ERT
NORO/	ERT_

NSRS

OTHERS (SPECIFY)

UNITED STATES GOVERNMENT	Z-105-
Memorandum TENNESSEE VALLE	EY AUTHORITY
TO : R. M. Pierce, Project Manager, 9-169 SP-K	·
FROM : K. W. Whitt, Director, Nuclear Safety Review Staff, E7B31 C-K	JUL 12 '85
DATE : July 10, 1985	
SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL	Walts Far Nuclear Pierc
	AMP JOC
Transmitted herein is NSRS Report No IN-85-216-001	
SubjectMSVR Structural Member Weld Repairs	
Concern No. <u>IN-85-216-001</u>	- 20 à -
and associated recommendations for your action/disposition.	
	- File Cope
It is requested that you respond to this report and the attache	d recom-
mendations by <u>August 2, 1985</u> . Should you have any q	uestions,

Recomm	mend Reportability Determination: Yes No
cc: 1	M. F. Willis, El2B16 C-K (6) J. T. Cottle, WBN
	Copy and Return
To:	K. W. Whitt, Director of Nuclear Safety Review Staff, E7B31 C-K
From:	R. M. Pierce, Project Manager, Watts Bar Nuclear Plant, 9-169 SB-K
Date:	July 12, 1985

I hereby acknowledge receipt of NSRS Report No. IN-85-216-001 Subject MSVR Structural Member Weld Repairs

for action/disposition.

please contact M. A. Harrison

Bur

at telephone

6328

7/12/85 Date

240

(Please copy entire page for return)

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

NSRS RECOMMENDATIONS: IN-85-216-001

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1. Q-85-216-001-01 "MSVR Structural Welding"

WBN PMO should initiate and process an NCR to document, evaluate, and correct the conditions identified in this report; as well as to assure determination of reportability to the NRC.

2. Q-85-216-001-02 "Control of Structural Welding"

WBN PMO should evaluate the apparent breakdown of management controls on structural welding to include:

- a. Failure to adhere to the recommended weld sequence in the absence of other authorized direction.
- b. Failure to provide PWHT.
- c. Failure to document the existance of cracks and obtain approved repair instructions.
- d. Use of memoranda to supercede authorized, or establish unauthorized QC requirements.
- e. Failure to provide necessary documents in work packages.
- Lack of awareness of responsibilities for involvement in planning and preparation of work packages of WEU.
- 3. Q-85-216-001-03 "Protective Coating -- MSVR Structural Members"

WBN PMO should assure that structural members in the MSVR's are properly protected as required.

CONCERN NO: IN-85-216-001

Page 1 of 20

CONCERN: Weld sequence during rework of structural steel members in North and South Main Steen Valve Rooms, Units 1 & 2, is not in accordance with Dwg. 48W1708-14. Work packages associated with rework do not give a sequence. Possible overstressing of welds because of out of sequence welding.

INVESTIGATION PERFORMED BY: J. T. Nation

DETAILS:

A. SCOPE OF INVESTIGATION

Structure: Units 1 & 2, North and South Main Steam Valve Rooms, structural steel; this is a Category I structure.

Activity: Rework of structural steel welds during the period of March 1983 to February 1984 for Unit 1 and April 1983 to January 1985 for Unit 2.

B. SUMMARY OF INVESTIGATION/FINDINGS

The concern is substantisted.

This investigation was conducted during the period of June 21, 1985 to July 1, 1985, and included interviews of personnel, identification and review of documents and records, and a welkdown of the instellations.

"Crecks" in structural steel (base material), particularly the occurence of thirteen (13) crecks within a two-week period in February 1984 in the Unit 1 South Main Steam Valve Room, is the most significant finding. None of the twenty-one (21) "crecks" were identified and reported as a nonconforming condition, and none of the repairs to the "crecks" were reviewed and approved by the designer.

Observations of conditions that warrant further attention are identified in Section H of this report.

CONCERN NO: IN-85-216-001

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DETAILS: (continued)

C. PERSONNEL CONTACTED

1. ENDES PERSONNEL

2. CONST (WEU) PERSONNEL

3. CONST (CEU) PERSONNEL

4. CONST (CSO) PERSONNEL

5. CONST (COC) PERSONNEL

6. CONST (WOC) PERSONNEL

D. REFERENCES

- 1. Drewinge:
 - (a) Drawings 48W1707-01 thru -18, "Structural Steel, Protective Devices, South Main Steen Valve Rooms," Units 1 & 2.
 - (b) Drewings 4801708-01 thru -14, "Structurel Steel, Protective Devices, North Mein Steen Velve Rooms," Units 1 & 2.

CONCERN NO: IN-85-216-001

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DETAILS: (continued)

- 2. Specifications:
 - (a) Project Construction Specification N3C-884 (RO, 2/28/78), "Fabrication and Installation of Pipe Rupture Mitigative Devices and Associated Support Structures."

18.

- (b) General Construction Specification G-29C, inpart:
 - (1) Process Specification O.C.1.1 (R1, 1/28/85), "Specification for Welding of Structures Fabricated in accordance with AISC Requirements for Buildings."
 - (2) Process Specification 1.C.1.2 (R3, 1/28/85), "General Welding Procedure Specification."
 - (3) Process Specification 2.C.1.1 (RO, 3/4/83), "Specification for Postweld Heat Treatment of AWS Weldments."
 - (4) Deteil Weld Procedure No. SM-P-1 (Rev. 9, 7/1/82)
 - (5) Detail Weld Procedure No. SH-U-1 (Rev. 6, 3/8/83)
- 3. Nonconforming Condition Reports (NCR):
 - (a) NCR 4753 (Rev. 0, 4/4/83 and Rev. 1, 6/17/83)
 - (b) NCR 5561 (Rev. 0, 3/30/84)
- 4. Deficiency Reports (50.55e) & Violation Responses
 - (a) TVA letter (A27 831018 007) deted October 18, 1983, to USNRC, Region II, "Watta Bar Nuclear Plants Units 1 and 2 - Welds on Structural Steel in Hein Steen Velve Rooms - WBRD-50-390/83-59 and WBRD-50-391/83-55 - Finel Report".
 - (b) TVA letter (A27 840509 004) deted May 9, 1984, to USNRC, Region II, "Wette Ber Nucleer Plant Unit 1 -Fillet Welds in Mein Stees Velve Rooss Lack Sufficient Cross Section - WBRD-50-390/84-20 - Finel Report".

CONCERN NO: IN-85-216-001

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DETAILS: (continued)

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- (c) TVA letter (A27 840524 011) dated May 24, 1984, to USNRC, Region II, "Watts Bar Nuclear Plant Units 1 and 2 - NRC-OIE Region II Inspection Report 50-390/84-25, 50-391/84-20 - Response to Violations".
- 5. USNRC Inspection Reports:
 - (a) Report No. 50-390/83-42 and 50-391/33-31, dated 11/1/83 for the period September 26-October 7, 1983.
 - (b) Report No. 50-390/84-25 and 50-391/34-20, dated 5/24/84, for the period March 26-29, 1984
 - (c) Report No. 50-390/84-48, dated 7/13/84, for the period June 26-29, 1984

6. Procedure/Instructions:

- (a) WBN-QCI-1.07 (R11,A1, 4/12/85) "Work Release".
- (b) WBN-QCI-1.56 (R8, 12/28/84) "Work Package".
- (c) WBN-UCP-2.04 (R14, 7/17/84) "Fabrication, Erection, and Inspection of Structural and Miscellaneous Steel."
- (d) WBN-OCI-1.02 (R14, 2/11/85), "Control of Nonconforming Items."
- (e) WBN-QCI-1.02-1 (R8, 3/8/85), "Inspection Rejection Notice."
- (f) WBN-OCI-1.02-2 (RO, 8/15/83), "Review of Significant NCR Action Required to Prevan: Recurrence."

7. Work Packages:

Refer '> Attachment B of this report for list of Work Packages.

8. Work Releases

Refer to Attachment C of this report for list of Work Releases.

CONCERN NO: IN-85-216-001

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DETAILS: (continued)

E. FINDINGS

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This section contains investigative findings which are directly related to the concern.

TABLE OF CONTENTS FOR FINDINGS

- 1. Personnel Interviews
- 2. Drawings
- 3. Specifications
- 4. NCR/IRN Reports
- 5. Deficiency Reports (50.55e) & Violation Response
- 6. USNRC Inspection Reports
- 7. Work Packages
- 8. Work Releases
- 9. The "Cracks"
- 10. Investigative Welkdown

1. Personnel Interviews

- (a) Personnel (refer to Personnel Contacted), who were involved in the rework in the Main Steam Valve Rooms, were contacted by ERT.
- (b) Statements or comments by personnel are presented for subjective information for those circumstances where objective, documentary evidence was not available or identified.
- (c) For the purpose of continuity, statements made by personnel are presented in the related sections of this report.