

BRIEFING PAPER FOR THREE WEEK
MULTI-OFFICE MEETING

TITLE HERE

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DATE: JANUARY 14, 2000

Region II

Licensee: Tennessee Valley Authority

Facility: Watts Bar Nuclear Plant

Unit(s): 1 and 2

Docket Nos: 50-390 and 391

License Nos.: NPF-90 and Construction Permit CPPR-92

OI Report No: 2-98-023

OI Report Issuance Date: November 19, 1999

1. Summary of Issue:

The TVA employee filed a I&H complaint with the DOL in January 1997. The complaint was for identifying a 1995 issue involving ice condenser screws. An ALJ decision regarding the complaint was given in April 1998. Based on the review of the ALJ transcripts the NRC identified a potential technical issue regarding the omission of information from a revised June 2, 1995 metallurgical report issued by the TVA central laboratory that may have involved wrongdoing. The information, which was related to defects in new replacement ice condenser screws in the warehouse, had been present in the original version of the metallurgical report. An OI investigation of the circumstances associated with this issue resulted. Additionally, an allegation concerning the adequacy of an evaluation of potentially defective ice condenser screws (NRR-1998-A-0011) was received by the NRC on January 12, 1998. The allegation also expressed multiple other concerns.

Problem Evaluation Report (PER) WBPER950246 was initiated on April 19, 1995, to identify that ice basket sheet metal screws were found in the ice melt tank after ice loading was completed. Westinghouse issued an evaluation report to the licensee on this issue, dated June 22, 1995. This report and the Westinghouse handling of licensee ice basket screw metallurgical lab reports were inspected by the NRC in 1998 and documented in NRC IR 99900404/98-02. This PER had previously been reviewed and addressed in IR 50-390, 391/97-04. The NRC review stated that the inspector reviewed the metallurgical reports dated June 2 and June 19, 1995. The NRC conclusion was that the ice condenser screws were fabricated to meet W specifications and that the licensee's actions were adequate.

Based on the results of the Westinghouse inspection, the inspectors re-reviewed

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Information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 7C
FOIA- 2001-0012

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WBPER950246 during a special inspection conducted on February 22 - May 3, 1999, at the Watts Bar facility. This inspection reviewed the maintenance, surveillance and engineering programs involving the Unit 1 ice condenser. Based on this review, two issues were identified that required further NRC review. With respect to the first issue, the inspectors determined that the licensee had not documented potential nonconforming materials associated with new IC screws even though lab results from the TVA Central Lab showed that those screws had defect indications. On June 2, 1995, the TVA Central Lab issued a report identifying that two new Watts Bar IC screws, not in-use, contained similar indications to in-use screws which were found to be broken. The potentially defective new screws were not evaluated as a potential condition adverse to quality. This item was identified as Unresolved Item (URI) 50-390/99-06-05, Documentation of Nonconforming Materials Associated With New IC Screws.

With respect to the second issue, the inspectors determined that the licensee had not monitored corrective action implementation for PER WBPER950246. The corrective action plan as documented in WBPER950246, Part C11, Corrective Action, Step 3, required Nuclear Engineering (NE) to submit the TVA Central Lab results to Westinghouse for review and to request Westinghouse to evaluate the data obtained during metallurgical testing of failed screws, screws removed from service, and new screws from stock. TVA had not requested Westinghouse to review the official June 19, 1995, test results until June 30, 1998. This item was identified as URI 50-390/99-06-06, Submission of IC Central Lab Report To Westinghouse.

Actions by licensee and TVA central laboratory (CLS) metallurgical laboratory personnel resulted in concealment of information about the potentially defective new IC basket screws in the warehouse. Licensee personnel failed to follow Watts Bar site procedures. Additionally, metallurgical laboratory personnel at the TVA central laboratory facility failed to follow CLS procedures.

Indications which support willfulness

The licensee failed to promptly identify and correct a condition adverse to quality in that licensee failed to document nonconforming materials associated with new IC screws in warehouse even though original TVA metallurgical laboratory results showed that those screws had defects. In addition, individuals appeared to have knowledge of the defective screws.

Willfulness of violations A and B

1. The Watts Bar lead civil engineer had performed a significant review of the original CLS report (6/2/95). That is evident from the fact that he initiated the revision effort, statements made during his interview with OI, and from statements made by the TVAN Chief Metallurgical Engineer concerning conversations about the original report.
2. The Watts Bar lead civil engineer was evasive about having read the revised report at the time of issue but had read it at some later time. He stated that he had not seen any difference in the analysis of new screws between the two versions of the report. That is not believable considering his level of experience, the relative importance of closing PER 950246, and his level of responsibility for closure of this issue. Although not a

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metallurgical engineer it is clear from statements made during his OI interview that he understood the significance of cracks in new screws and 10CFR21 requirements.

3. The Watts Bar lead civil engineer statements to OI and NRC OIG contained conflicting information. He told OIG that he had not been aware of the existence of the original CLS report until 1997 and did not remember talking to the TVAN Chief Metallurgical Engineer-Nuclear about the original report. He then told OI that he had reviewed the same report and discussed the conclusions with the TVAN Chief Metallurgical Engineer-Nuclear.
4. The [REDACTED] should have understood the significance of the potentially defective screws since he later stated that it was significant that the information regarding quench cracks had been left out of the revised report. 7c
5. The [REDACTED] was knowledgeable of information contained in the original report since he stated that the WBN lead civil engineer had expressed concerns about conclusions contained in the original report and asked him to evaluate the report. He further stated that he had concerns of his own once he read the report. However, he also stated that he had not learned of a possible defect in the new screws until September 1998. That is not believable considering his previous level of involvement in this issue. 7c

Willfulness of nonconformance

1. The [REDACTED] was the only individual to sign either version of the lab report or the endorsement to original report. There was no requirement for the engineer that actually performed the analysis to sign (since that time CLS has implemented a new requirement for lab reports to be signed by two individuals). 7c
2. The [REDACTED] stated that the original report, which she had signed on June 2, 1995, had been recalled, destroyed and not sent to RIMS. However, the endorsement to that original report, which she also signed, referenced the original report with its RIMS number. The endorsement to the original report was issued and given a RIMS number on June 12, 1995. Neither the revised report or the endorsement to the original report could be retrieved from RIMS when the licensee attempted to review these documents. This is explained in CAR 98003 issued by CLS. However, as previously mentioned CLS and site management understood that two different versions of the report had occurred and that the original version was not intended to become the official version. 7c
3. It is not believable that the [REDACTED] would fail to closely review the revised report considering the level of TVA corporate management interest with the content of the original report, her level of experience, and the relative inexperience of the engineer that performed the analysis: 7c

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4. After comparing the two reports during the 1997 efforts to reconcile the differences the [REDACTED] failed to make specific mention of potentially defective screws to TVAN Chief Metallurgical Engineer-Nuclear 7

Opportunities to Identify the Discrepant Conditions

On June 12, 1995, the laboratory issued an endorsement to the June 2, 1995, laboratory report which contained information about which screw samples were discovered to contain cracks.

On June 19, 1995, the TVA metallurgical laboratory issued a report that did not identify that ice condenser screws in the warehouse contained similar indications to in-use screws found to be broken.

On July 31, 1997, the laboratory lead metallurgical engineer issued a memorandum intended to clarify the two versions of the laboratory report.

On September 3, 1998 laboratory lead metallurgical engineer issued a report to TVA management regarding why Set B information was omitted from the June 19, 1995, version of the laboratory report

On October 20, 1998, the TVAN chief metallurgical engineer provided a reconciliation report which addressed the differences between the two versions of the laboratory report to TVA management.

TIMELINE

- 4/19/95 Approximately 170 broken screw pieces and 32 whole screws were found in IC melt tank by system engineer.
- 4/21/95 PER 950246 issued by Alleger to identify that ice basket sheet metal screws were found in the ice melt tank after ice loading was completed.
- 6/2/95 Original version of TVA Central Lab Services (CLS) report 95-1021 was issued.
- 6/8/95 Alleger faxed copy of original version of CLS report to Westinghouse & Duke.
- 6/12/95 CLS issued endorsement to original version of CLS report, referenced by RIMS number.
- 6/19/95 Revised version of CLS report 95-1021 issued. No revision number used. Original and revised versions of report were labeled with same number.
- 6/22/95 Westinghouse evaluation (WAT-D-10048) issued (also referred to as MSE-REE-1371). This provided a basis for accept-as-is of condition described in PER 950246. This evaluation was a static analysis (to show IC was operable with no more

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than 2 of 12 Screws per joint missing) and did not address either version of CLS report or potentially defective screws.

- 7/11/95 CLS issued memo to Watts Bar engineering in effort to clarify reason for 2 different versions for CLS report. Both versions were mentioned by RIMS number but stated intent was that only later version would be considered official QA record and be sent to RIMS.
- 7/12/95 PER 950246 transferred from system engineering organization (attester) to site engineering (lead civil engineer).
- 7/28/95 Watts Bar lead civil engineer signed documents in closure package for PER 950246 indicating corrective actions were complete and the PER was ready for closure. PER closure based on Westinghouse evaluation.
- 8/10/95 Closure verification for PER 950246 performed by site QA organization.
- 8/25/95 Original version of CLS report dated 6/2/95 was entered in RIMS.
- 11/95 Watts Bar OL was issued by NRC.
- 7/31/97 Memo from CLS Metallurgical Engineer was issued which was intended to clarify information concerning 2 versions of CLS report.
- 7/31/97 Memo from CLS Lead Metallurgical Engineer was issued which was intended to clarify information concerning 2 versions of CLS report. Memo stated that all copies of original CLS report had not gone to RIMS.
- 12/2/97 Watts Bar NE issued supplement to PER 950246 closure package to document that a copy of CLS report had been sent to Westinghouse.
- 9/3/98 CLS Lead Metallurgical Engineer issued report to TVA management regarding why Set B information was omitted from 6/19/95 CLS report [TVAN Chief Metallurgical Engineer-Nuclear stated that he had not learned of a possible defect in the new screws until this date].
- 10/20/98 TVAN Chief Metallurgical Engineer-Nuclear provided reconciliation report to TVA management.
- 10/26/98 Watts Bar NE issued additional supplement to PER 950246 closure package to include information from reconciliation report on differences between two versions of CLS reports. TVA management concluded omission was inadvertent.
3. Identification Credit? ☐ YES ☒ NO

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Credit is not warranted for identification because TVA had failed to document the potentially defective screws.

Mark applicable items and discuss below.

- ☐ Licensee-identified ☒ NRC-identified
☐ Mixed identification ☐ Revealed through event

Explain how this issue was identified: NRC allegations and an NRC OI investigation

4. Corrective Action Credit? ☐ YES ☐ NO ☒ Indeterminate

Explain licensee's corrective action, i.e. (was corrective action prompt and comprehensive):

Once the licensee became aware of the omission of the information associated with the defective new screws and due to industry-wide ice condenser concerns, the licensee performed an ice condenser assessment in 1998. As part of this assessment, additional testing of screws from the warehouse was conducted and documented in CLS Technical Report 98-1612.

Additionally, the licensee conducted detailed inspection and further testing of IC basket screws during the spring 1999 refueling outage. The purpose of the test was to evaluate the IC for missing screws and to determine the shear strength capacity of the IC screws. Approximately 46,000 screw locations were inspected to determine the material condition of the in-use screws. These locations were primarily in the upper and lower ring joints. Screws were found missing from 17 locations and screw heads were missing from 9 additional locations.

The NRC observed portions of the ongoing testing and concluded that the IC basket screw in-use sampling program was thorough and the testing program was a conservative method of assessing the load capability of the installed ice basket screws.

ENFORCEMENT ACTION WORKSHEET - PART 2

5. Risk Significance: Low
6. Identify Previous Escalated Action Within 2 Years or 2 Inspections:
None
7. Candidate For Discretion? [See attached list] NO

Explain basis for discretion consideration and criteria:

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8. Region II Recommendation

The Region concluded that the Watts Bar lead civil engineer [REDACTED] acted in willful non-compliance to Appendix B, Criterion XVI and Criterion V. The technical significance of these two violations are characterized separately at Severity Level IV. However, the willful aspects would warrant a Severity Level III violation to the licensee. The Region recommends combining these two violations into one SL III problem. 7C

The Region also concluded that the [REDACTED] acted in willful non-compliance to Appendix B, Criterion XVI. This issue would be characterized as a willful non-conformance. 7C

No enforcement action is recommended for the individuals.

The Region recommends a joint closed PEC with Watts Bar and CLS.

Open PEC ☒ Closed PEC Choice Letter Direct Enforcement Action Issuance

9. Regulatory Message:

Willful violations of regulatory requirements are of particular concern to the NRC, and will not be tolerated.

10. Are there lessons learned from this inspection or review of proposed enforcement action which would warrant generic communication (IN, GL, etc.), inspection or enforcement guidance, or a need for NRR or NMSS programmatic guidance or interpretation of requirements?

YES ☒ NO

Enforcement Coordinator:
DATE:

Attachments: 1. Draft NOV
2. Draft Notice of Nonconformance

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