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AUTH. NAME AUTHOR AFFILIATION
HINTZ, D. C. Wisconsin Public Service Corp.
RECIP. NAME RECIPIENT AFFILIATION
ZECH, G. C. Vendor Program Branch

SUBJECT: Discusses 860430 malfunction of Westinghouse DB-50 undervoltage trip attachment (UVTA). Defective UVTA sent back to Westinghouse on 840501. No evidence found that defect result of insp or maint performed at facility.

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WISCONSIN PUBLIC SERVICE CORPORATION
600 North Adams • P.O. Box 19002 • Green Bay, WI 54307-9002

August 6, 1986

Gary G. Zech, Chief
Vendor Program Branch
Division of Quality Assurance, Vendor
and Technical Training Center Programs
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Malfunction of DB-50 Undervoltage Trip Attachment

Reference: 1) Letter from Gary G. Zech (NRC) to T. Christopher (Westinghouse) Electric Corporation) dated April 30, 1986

It has recently come to our attention that an audit of the Westinghouse Electric Corporation's, Nuclear Systems Integration Division was performed concerning the failure of Undervoltage Trip Attachments (UVTAs) on Reactor Trip Breakers at both the D. C. Cook Nuclear Plant and the Kewaunee Nuclear Power Plant (KNPP). Results of this audit are docketed in reference 1. A review of this audit by Wisconsin Public Service Corporation (WPSC) as it applies to the KNPP has necessitated the following comments.

The inspection report (reference 1) identifies the UVTA supplied to the KNPP as having operating coils rated at 48 volts DC. The Reactor Trip Breakers used at the KNPP are the Westinghouse DB-50. The UVTA operating coils for this style breaker are rated for 125 volts DC. Hence, the 48 volts DC is in error as it should have read 125 volts DC.

Secondly, the UVTAs were not held in storage until June, 1984. The four UVTAs were received at the KNPP on April 20, 1984 at 1500 hours. On April 21, 1984 the first UVTA was drawn out of stock and installed on Reactor Trip Bypass Breaker B. The second UVTA was drawn out of stock on April 23, 1984 for installation on Reactor Trip Breaker B. The third UVTA was drawn out of stock

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Add'l Add: Gary Zech
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on April 30, 1984 and was installed on Reactor Trip Breaker B, thus replacing the defective UVTA drawn out of stock on April 23, 1984. The defective UVTA was sent back to Westinghouse on May 1, 1984 and arrived on May 2, 1984. The fourth UVTA is the only one of the four which remained in storage throughout the time period.

Finally, Attachment 1 to this letter is a copy of the letter sent to Westinghouse which details the results of our investigation into the replacement of DB-50 UVTA's at KNPP during the 1984 maintenance/refueling outage. The conclusions from our investigation reveal no evidence that the defect could be a result of any inspection or maintenance activity performed by WPSC. Attachment 2 to this letter is a copy of the letter sent to R. C. DeYoung, Director-Office of Inspection and Enforcement, US NRC. This letter was written to confirm a telephone conversation between the US NRC, Westinghouse Electric Corporation and WPSC. It provides a brief description of the event and subsequent results of the WPSC investigation into this matter.

Sincerely,

D. C. Hintz
Vice President - Nuclear Power

DJM/jms

Attach.

cc - Mr. Robert Nelson, US NRC
Mr. G. E. Lear, US NRC

Attachment 1

Letter to Gary G. Zech (NRC) from

D. C. Hintz (WPSC) Dated August 6, 1986

Wisconsin Public Service Corporation

Kewaunee Nuclear Power Plant

WISCONSIN PUBLIC SERVICE CORPORATION

Kewaunee Nuclear Power Plant
Route 1, Box 48
Kewaunee, WI 54216

June 1, 1984

Westinghouse Electric Corporation
Research and Development Center - Bldg. 701
P.O. Box 2728
Pittsburgh, PA 15230

Subject: DB-50 UVTA S/N 02YN213-09

Ref: Letter to DCHintz, Wisconsin Public Service Corporation
from EVSomers, Westinghouse Electric Corporation, dated May 24, 1984.

Dear Mr. Somers:

Per your request in the reference, the attachment to this letter details the results of our investigation into the replacement of DB-50 UVTA's at Kewaunee during the 1984 Maintenance/Refueling outage.

If you have any additional questions, please contact MLMarchi or myself.

Very truly yours,

DCHintz
Plant Manager

cc: CWGiesler
CASchrock
MLMarchi
DJKwiatkowski - Westinghouse Site Manager

KNPP Onsite Investigation of Westinghouse DB-50 Undervoltage Trip Attachment

Background:

As part of the Salem Event, the NRC issued Generic Letter 83-28 which required a detailed investigation, maintenance commitments, and a response to the NRC all leading to improved reliability of the DB-50 Reactor Trip Breaker. Even though KNPP had established a formal maintenance PM program in late 1978 for the DB-50 breaker, a more detailed rigid program was established in accordance with the guidelines established by Westinghouse. It was in accordance with these newer criteria (addition of a weight on the trip lever assembly during testing) that replacement of one of the four UV trip attachments was necessary. A second UV trip attachment had to be replaced because one of the leads to the UV trip coil was irreparably damaged during the PM.

Chronology of Events:

On 4-11-84 PM testing was completed on the four Westinghouse DB-50 Reactor Trip breakers with the results noted above. No spare UV trip attachments were in stock, so the Westinghouse Site Manager was alerted and asked to check the availability of spares from Westinghouse. Spares were available and WPS requested that four spares be shipped immediately. P.O. 87410 was issued.

The UVTA's arrived onsite 4-20-84. Prior to QC receipt inspection, the Westinghouse Site Manager and the WPS Electrical Foreman opened the shipping box containing 4 smaller boxes of one each UVTA. One of these boxes was opened and the correct UVTA verified. The UVTA's were placed under lock and key in the QC hold area pending receipt of the WPS Purchase Order.

On Saturday, 4-21-84, one UVTA was drawn out of stock on conditional release (Serial #02YB213-08) and installed on Reactor Trip Bypass Breaker B to replace the UVTA with the broken coil lead. Bench testing was acceptable. Clearance of 1/16 inch between the trip lever and trip bar was maintained by placing a shim under the base plate of the UVTA. The faulty UVTA which was removed was kept by the Electrical Foreman on his desk.

On Monday, 4-23-84, a second UVTA (Serial #02YN213-09) was withdrawn from stock (QC hold area) to replace the UVTA on Reactor Trip Breaker B which had failed the force test. Again bench testing was acceptable. The faulty UVTA was kept on the bench in the Electrical Shop for two days before it was discarded with routine trash removal.

It should be noted that replacement of the UVTA's took less than one hour in both cases and besides the electrician performing the work, it was witnessed at various times and random intervals by the Electrical Foreman, Assistant Superintendent - Maintenance, and Quality Control Technician. At the completion of the 2nd changeout, the Westinghouse Site Manager observed the acceptable bench test. After changeout the DB-50 breakers were returned to their respective breaker cubicles in the Control Rod Drive Room, and left in the "racked-out" position.

As was mentioned, the Westinghouse guidance was misinterpreted to mean to allow only a 1/16 inch clearance between the UVTA trip lever and the breaker trip bar. Shims were installed to get 1/16 inch clearance. Because of uncertainty of this requirement, the electrical foreman requested the Westinghouse Site Manager to verify the acceptability of the shims. On 4-25-84 the Westinghouse Site Manager informed the Electrical Foreman that the shims were unacceptable and that the guidance meant maintain at least 1/16 inch clearance. The shims were removed the same day. The breaker was removed from the cubicle but was not taken out of the Control Rod drive room.

Late on 4-30-84, in preparation for rod drop testing it was discovered that RTB-B would not close. Investigation by the Electrical Foreman and Leadman showed that the UVTA was energized but the trip latch was slipping off the latch pin as the breaker was being closed.

The breaker was removed from the switchgear; the UVTA energized from a portable power source and the breaker manually closed. The breaker was then jolted, simulating the force of the closing coil, the UVTA latch slipped off the latch pin and the breaker tripped. At that time it appeared the UVTA was overlubricated and was then cleaned with 3M contact cleaner #1607. The breaker was reinstalled in the switchgear and tested from the Control Room. Again, as the breaker was going closed, the UVTA latch slipped off the latch pin and the breaker tripped.

At that time it was decided to replace the B Reactor Trip Breaker with a Bypass Breaker and continue Control Rod drop testing.

On 5-01-84, Reactor Trip Breaker B was taken to the Electric Shop and retested.

It was found that if the breaker was manually closed, the UVTA would stay in the energized position. If the manual closing handle was subjected to a rapid jolting motion (simulating electric closing) the UVTA latch would slip off the latch pin, causing the breaker to trip.

This condition was witnessed by the WPSC Electrical Foreman, Electrician Helper, Plant QC representative and the Westinghouse Site Manager. It was therefore decided to replace the UVTA. The replacement UVTA, serial #02YN213-10, was installed and tested in the Electric Shop and cycled (4) times from the Control Room.

Inspection of the defective UVTA, serial #02YN213-09 at Kewaunee, showed the latch to be of a stamped design, slop in the pivot pin bushing, missing split ring on the pivot pin, and dimensional error on the UVTA latch. The defective UVTA was shipped back to Westinghouse the same day.

Conclusion:

Due to the short time that the UVTA's were onsite, the traceablity of all the UVTA's was well noted. All personnel aware of and in contact with the UVTA's from the time of arrival until the defective UVTA was shipped were interviewed at least twice. Without taking sworn affidavits, all personnel affirmed that no tampering was done with the defective UVTA.

Secondly, from the timing standpoint it was not possible to perform the detailed changeout of parts subsequently found. The changeout could only have occurred while both the new and old UVTA from RTB-B were on the bench at the same time. Besides the man doing the work, several witnesses would have surely noticed this activity.

Thirdly, no motivation existed to attempt a parts changeout. Two spares were still available in stock if a new UVTA was found faulty. Our electricians, especially the Electrical Foreman are keenly aware of the QA requirements and documentation needed, as evidenced by the questioning of the placement of the shims.

Safety Consequences:

As modified, the defective UVTA was prone to failure in a "Fail Safe" condition. Therefore, there are no safety consequences of this event. As described in the investigation report above, no breakdowns in Quality Controls were determined to exist at the Kewaunee Plant. The NRC Resident Inspector was made aware of the incident as a routine contact and was informed that KNPP would not report this event.

10 CFR 21 Consideration:

As described in the investigation report, this event does not constitute a 10 CFR 21 report. No defective component exists. A modified UVTA was found faulty. Based on this investigation it appears that the faulty UVTA was not modified at Kewaunee. This appears to be an isolated incident, given the information transmitted by Westinghouse.

Attachment 2

Letter to Gary G. Zech (NRC) from

D. C. Hintz (WPSC) Dated August 6, 1986

Wisconsin Public Service Corporation

Kewaunee Nuclear Power Plant

NRC-84-99

WISCONSIN PUBLIC SERVICE CORPORATION

P.O. Box 1200, Green Bay, Wisconsin 54305

June 7, 1984

Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Malfunction of DB-50 Undervoltage Trip Attachment

This is to confirm a telephone conversation of June 7, 1984, with Mr. G. Lanick of the Nuclear Regulatory Commission, Mr. John McAdoo of Westinghouse Electric Corporation (Westinghouse), and Mr. C. A. Schrock of Wisconsin Public Service Corporation (WPSC) in which the NRC was informed of a malfunction of a DB-50 Undervoltage Trip Attachment (UVTA). Independent evaluations of the malfunction by WPSC and Westinghouse have both resulted in the determination that a substantial safety hazard does not exist and that there is no knowledge to indicate that this is anything other than an isolated occurrence. This event is reported for your information; no additional action is considered necessary.

As a result of routine preventive maintenance performed during the recently completed Kewaunee Nuclear Power Plant (KNPP) scheduled refueling outage, it was determined that it was necessary to replace two DB-50 breaker undervoltage trip attachments on reactor trip switchgear. Since no spare UVTA's were in stock, four spares were ordered from Westinghouse. After installation, one of these UVTA's was found to be defective and replaced with another of the spares.

The defective UVTA was then examined to determine the cause of the malfunction. This inspection indicated that the latch was of a stamped design, there was more than normal clearance on the pivot pin bushing, there was a missing split ring on the pivot arm, and there was a dimensional error on the UVTA latch. The painted "tamper marks" on the UVTA set screws were intact. The defective UVTA was then sent back to Westinghouse for further evaluation. The NRC Resident Inspector was informed of the UVTA malfunction and the results of this examination on May 4, 1984.

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An investigation was then performed to determine if a breakdown had occurred in the quality control or maintenance practices at KNPP. This investigation has resulted in the following conclusions:

1. The UVTA was handled in accordance with the KNPP Quality Assurance program.

2. There was no opportunity or motivation for KNPP personnel to rework the UVTA, and

3. The UVTA was received in the condition described above.

Very truly yours,

Clarke A. Schock for

Carl W. Giesler
Vice President - Power Production

CAS/js

cc - Mr. S. A. Varga, US NRC
Mr. Robert Nelson, US NRC
Mr. George Lanick, US NRC
Mr. Bob Stokes, Westinghouse
Mr. John McAdoo, Westinghouse
Mr. David Baker, Foley & Lardner