



## Nebraska Public Power District

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October 25, 1991

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555

Subject: Plan for Reactor Pressure Vessel Head Stud Rejectable Indication  
Cooper Nuclear Station  
NRC Docket No. 50-298, License No. DPR-46

Gentlemen:

On October 21, 1991, a conference call was held with members of your staff to discuss a rejectable indication in a reactor pressure vessel (RPV) head stud discovered during planned inspection activities. During this conference call, the District was requested to submit a letter detailing our plans regarding this discovery. The requested information is contained herein.

General Electric Company Rapid Information Communications Services Information Letter (RICSIL) Number 55 was issued on February 1, 1991, to notify affected utilities of the RPV head stud cracking phenomenon. The RICSIL ascribed the phenomenon to studs manufactured from material with high hardness values. Further, it recommended that utilities evaluate the head stud material for installed studs and ultrasonically examine the five studs with the highest hardness values at the next available opportunity.

The Cooper Nuclear Station (CNS) RPV has a total of 52 RPV head studs. Head stud numbers 1 through 21 and 26 were fabricated from the same heat lot of SA540 grade B24 alloy steel having relatively high hardness and low Charpy V notch impact strength. These head studs were scheduled to be ultrasonically examined per RICSIL Number 55 during the 1991 Refueling Outage. Although RICSIL Number 55 recommended ultrasonic examination of only five RPV head studs with the highest hardness values, the District took the more conservative approach of planning to examine all studs from the heat lot in question in order to eliminate any variables associated with the hardness testing of these studs. In addition, a review of CNS Inservice Inspection records and ASME Section XI requirements indicated that examination of stud numbers 18 through 35 should also be scheduled for the 1991 Refueling Outage.

CNS shut down for the 1991 Refueling Outage on October 4, 1991. On October 9, the ultrasonic examination of RPV head stud numbers 1 through 35 was performed. The examination was conducted using a 0° L wave technique in accordance with Section XI of the ASME Code. RPV head stud number 26 was found to have a rejectable ultrasonic indication located 15 inches below the top of the stud. This indication extends for approximately 180° of the stud circumference, and has an apparent depth of 1.5 inches.

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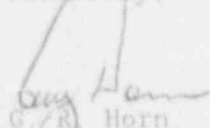
As a result of this discovery, the District plans to perform the following additional nondestructive examinations on CNS RPV head studs prior to commencing startup from the refueling outage:

1. RPV head stud numbers 36 through 52 will be subjected to a 0° L wave ultrasonic examination in accordance with the requirements of Section XI of the ASME Code. Stud numbers 36 and 41 through 52 will be examined while installed in the RPV flange. Stud numbers 37 through 40 have been removed from the RPV flange to facilitate refueling activities and will be examined prior to reinstallation.
2. RPV head stud number 26 will be subjected to a shear wave ultrasonic examination from the extensometer (centerline) bore in accordance with ASME Section XI Code Case N-307-1 prior to removal. This examination has been endorsed by the NRC Regulatory Guide 1.147 and will provide additional indication sizing information.
3. Three additional RPV head studs selected from the suspect lot will be subjected to a shear wave ultrasonic examination in accordance with Code Case N-307-1. This examination will be performed while these studs are installed in the RPV flange.

As a final item, the District intends to either replace stud number 26 or justify another cycle of operation after the aforementioned additional indication sizing information is obtained.

Should you have any questions or require any additional information regarding this submittal, please contact me.

Sincerely,



G. R. Horn  
Nuclear Power Group Manager

GRH/JMM/ya

cc: NRC Regional Office  
Region IV  
Arlington, TX

NRC Resident Inspector  
Cooper Nuclear Station