



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

January 27, 1994

(10 CFR 2.206)

Mr. John Willis, Coordinator
Nuclear Campaign
Greenpeace International
1436 U Street, N.W.
Washington, D.C. 20009

Dear Mr. Willis:

The purpose of this letter is to inform you of the status of the efforts undertaken by the staff in response to your letter dated March 24, 1993, to the Chairman of the U.S. Nuclear Regulatory Commission (NRC or Commission) regarding primary water stress corrosion cracking (PWSCC) of Alloy 600 in pressurized-water reactor (PWR) vessel head penetrations (VHPs). You requested action regarding all PWRs now operating in the United States. As stated in my June 7, 1993, reply, your March 24, 1993, letter is being handled as a petition for enforcement action in accordance with 10 CFR 2.206.

The NRC staff met with the Babcock and Wilcox Owners Group (B&WOG), the Combustion Engineering Owners Group (CEOG), and the Westinghouse Owners Group (WOG) to discuss the PWSCC of PWR VHPs on several occasions during 1992 and 1993. The NRC requested that the Nuclear Management and Resources Council (NUMARC) coordinate the owners groups' efforts because all U.S. PWRs may experience PWSCC of VHPs. Each of the owners groups submitted a safety assessment through NUMARC to the NRC on this issue. NUMARC submitted proposed acceptance criteria for flaws identified during inservice examination of VHPs to the NRC in July of 1993. Summaries of the meetings with the owners groups, the safety assessments, and the proposed criteria are available from the Commission's Public Document Room. These documents are listed on Enclosure 1.

After reviewing the industry's safety assessments and examining the overseas inspection findings, the staff concluded that VHP cracking is not a significant safety issue at this time. The bases for this conclusion are that if PWSCC occurred at VHPs, 1) the cracks would predominately be axial in orientation, 2) the cracks would result in leakage before catastrophic failure, and 3) the leakage would be detected during visual examinations performed as part of surveillance walkdowns before significant damage would occur to the reactor vessel head. In addition, the staff has concerns related to occupational radiation exposures associated with eddy current or other forms of nondestructive examinations. Field experience in foreign countries has shown that occupational radiation exposures could be significantly reduced in a well-planned examination program, which would

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PDR REVGP ERGNUMRC
PDR

XRD-8-2 (High Pressure)
XRD-8-2 (Mid-Pressure)
XRD-10-1 (PWR)
XRD-10-2 (PWR)
XRD-10-3 (PWR)

DFB
RD8-2
BNU
PDR
NUMARC
XRD-10-6 (Mtg)

Mr. John Willis

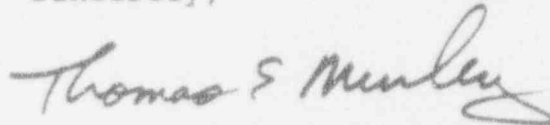
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include the use of remotely controlled or automatic equipment. Currently, the U.S. nuclear industry is developing such equipment for inspection and possible repairs. Accordingly, requiring immediate nondestructive examinations (e.g., eddy current) at all PWRs could result in significant, unnecessary worker radiation exposures.

Enclosed for your information are copies (Enclosure 2) of the NRC staff's safety evaluation for potential cracking of Alloy 600 VHPs and a memorandum to the Commissioners informing them of the status of the VHP issue.

I will issue a final decision with regard to your petition after the staff has reviewed the findings of the first three inspections at U.S. PWRs scheduled for the spring and fall of 1994. In the interim, the NRC staff will include you on distribution for all external correspondence associated with this issue and will keep you informed of any future meetings on this subject.

Sincerely,



Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Enclosures:

1. Listing of Documents
2. Commission memorandum
w/Safety Evaluation attached

cc w/enclosures:
All PWR Licensees
NUMARC
EPRI
CEOG
WOG
B&WOG

Docketed Information Relative
to
PWSCC of CRDM Penetrations

Meeting Summary, CEOG and NRC, February 1990.

Meeting Summary, WOG and NRC, January 7, 1992.

Meeting Summary, CEOG and NRC, March 25, 1992.

Meeting Summary, B&WOG and NRC, May 12, 1992.

Meeting Summary, WOG and NRC, August 18, 1992.

Meeting Summary, WOG and NRC, November 20, 1992.

Meeting Summary, NUMARC and NRC, March 3, 1993.

Submitted to NRC from NUMARC on June 16, 1993:

Westinghouse WCAP-13565, "Alloy 600 Reactor Vessel Head
Adaptor Tube Cracking Safety Evaluation," February 1993.

Combustion Engineering Owners Group CEN-607, "Safety
Evaluation of the Potential for and Consequence of Reactor
Vessel Head Penetration Alloy 600 ID Initiated Nozzle
Cracking," May 1993.

Babcock and Wilcox Owners Group BAW-10190, "Safety
Evaluation for B&W-Design Reactor Vessel Head CRD Mechanism
Nozzle Cracking," June 1993.

Request for additional information (RAI), NRC to NUMARC, July 12,
1993.

Industry Flaw Acceptance Criteria, NUMARC to NRC, July 30, 1993.

NUMARC to NRC, Response to RAI, September 22, 1993.