



# NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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## NRC ASKS FOR INFORMATION FROM CERTAIN NUCLEAR PLANT LICENSEES ON REACTOR VESSELS

The Nuclear Regulatory Commission has issued a bulletin seeking information from several nuclear power licensees regarding the structural integrity of reactor pressure vessel head penetrations.

The bulletin is being sent to the licensees of 69 pressurized water reactors (PWRs) as the result of recent discoveries of cracked and leaking penetration nozzles in the top of reactor pressure vessels. These nozzles are fabricated from Alloy 600 material.

These discoveries have raised concerns about the structural integrity of reactor penetration nozzles in the top of reactor pressure vessels at PWRs throughout the industry. Control rod drive shafts pass through penetration nozzles which sit at the top of a reactor vessel head. Control rod drive mechanisms (CRDMs) are used to guide the movement of control rods in and out of a reactor core.

Axial cracking (along the length) of these nozzles has previously been observed but has not been considered a safety concern requiring immediate attention. This issue was addressed by the NRC in Generic Letter 97-01, issued in 1997. Inspections and repairs have generally been made during plant maintenance outages. However, earlier this year, circumferential cracking (part way around the width of the nozzle, above the structural retaining weld) was discovered at two PWRs.

One function of the nozzles is to maintain the reactor coolant system pressure boundary. Cracking of the control rod drive mechanism nozzles represent a degradation of the primary reactor coolant system boundary, and hence, is potentially safety significant.

NRC is requesting information from PWR licensees to determine whether current inspection practices are adequate and whether any additional regulatory response by the agency is necessary.

The NRC bulletin requests PWR licensees to provide information related to the structural integrity of these reactor pressure vessel head penetration nozzles, "as needed to ensure the integrity of their reactor coolant system pressure boundaries and demonstrate compliance with applicable regulatory requirements." The bulletin also requires that PWR licensees submit a written response indicating whether the requested information will be submitted within the required 30-day time period. NRC licensees unable to satisfy this requirement will have to submit a written description of any alternative course of action they propose to take, including the basis for its acceptability.

NRC has established a web site at: <http://www.nrc.gov/NRC/REACTOR/ALLOY-600/index.html>

to keep the public informed of generic activities on cracking of Alloy 600 material in PWRs. This page provides links to information regarding the cracking identified to date, along with documentation of NRC interactions with its licensees (industry submittals, meeting notices, presentation materials, meeting summaries and the full text of this bulletin). The NRC will continue to update this web page as new information becomes available.

NRC will meet with representatives of the Nuclear Energy Institute and PWR licensees on August 15 to discuss the agency's expectations regarding licensee responses to the bulletin. The meeting will be held from 9:00 to 11:00 a.m. in room T-2B3 of the agency's Two White Flint North building, 11545 Rockville Pike, Rockville, Maryland. The meeting is open to public observation.

EDITORS: A drawing illustrating a typical pressurized water reactor vessel upper head is attached.

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# TYPICAL PWR VESSEL UPPER HEAD

CIRCLE SHOWS TYPICAL LOCATION OF OBSERVED PRIMARY WATER STRESS CORROSION CRACKING (PWSCC)

