

## **POLICY ISSUE INFORMATION**

August 2, 2002

SECY-02-0149

FOR: The Commissioners

FROM: William D. Travers  
Executive Director for Operations

SUBJECT: PROPOSED BULLETIN: "REACTOR PRESSURE VESSEL HEAD AND  
VESSEL HEAD PENETRATION INSPECTION PROGRAMS"

### PURPOSE:

To inform the Commission of the staff's intention to issue the attached bulletin to address concerns with current reactor pressure vessel (RPV) head and vessel head penetration (VHP) inspections in pressurized-water reactors (PWRs).

### BACKGROUND:

Undetected circumferential cracking of VHP nozzles and degradation of the RPV head can pose a safety concern if permitted to progress to the point that the integrity of the reactor coolant pressure boundary is in question and the probability of a loss-of-coolant accident (LOCA) or a VHP nozzle ejection increases. The recent discoveries of circumferential cracking of VHPs and RPV head material degradation have raised several issues that prompted the staff to question the adequacy of current RPV head and VHP inspection programs that rely on visual examinations as the primary inspection method.

The staff used licensees' responses to NRC Bulletins 2001-01 and 2002-01 to determine the need for, and guide the development of, additional regulatory actions to address cracking in VHP nozzles and the material condition of the RPV head and the rest of the reactor coolant pressure boundary. As a result of the circumferential cracking of VHPs at Oconee Nuclear

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Station 3 and other PWR facilities, the RPV head material degradation at Davis-Besse, and the staff's review of responses to NRC Bulletins 2001-01 and 2002-01, the NRC staff has a number of concerns about the inspection requirements and programs for the RPV heads and VHPs. Based on experience gained to date and information currently available concerning cracking and degradation, inspection programs that rely on visual examinations may need to be supplemented with volumetric and surface examinations to demonstrate compliance with applicable regulations.

Currently, a number of activities by various organizations address the questions and concerns discussed in the proposed bulletin. The staff expects that the results from the industry's ongoing and planned research effort, the industry's nondestructive examination demonstration program, and the NRC's confirmatory research programs will form the technical basis for a more effective inspection program for the reactor vessel head and reactor vessel head penetrations. The staff plans to participate in ongoing efforts to revise the American Society of Mechanical Engineers (ASME) standard that governs RPV head and VHP inspections.

#### DISCUSSION:

While numerous ongoing activities address the staff's questions and concerns, the staff plans to issue a bulletin to all PWR licensees requesting information to help the staff determine, in an expedient time frame, if additional regulatory action is warranted in the interim to ensure the integrity of the reactor coolant pressure boundary (RCPB).

Under the provisions of 10 CFR 50.54(f) and Section 182a of the Atomic Energy Act of 1954, as amended, the proposed bulletin requires PWR licensees to submit information for the purpose of verifying their compliance with existing regulatory requirements. Specifically, the bulletin requests information related to changes, if any, PWR licensees have made to their inspection programs for the RPV head and VHPs and their justification for continued reliance on visual examinations as the primary method to detect degradation.

The information will enable the staff to determine whether inspections at reactor facilities provide reasonable assurance that the integrity of the RCPB is being maintained. As soon as practical, the staff will perform an initial assessment of the information submitted to determine the need for further regulatory actions, such as the issuance of orders. Should the staff determine that such regulatory action is necessary, the staff will notify the Commission.

The bulletin is the first step in a multistep approach to address concerns about the adequacy of inspection requirements and programs for RPV head and VHP inspections. The steps are: (1) issue the attached bulletin, (2) review the responses to determine if further interim regulatory actions are needed, (3) participate in the ASME efforts to revise the inspection requirements, and (4) initiate rulemaking to incorporate the revised ASME standards into NRC's regulations.

Continued communication with the industry and other stakeholders is needed to effectively resolve the issues stated in the bulletin. The staff plans to hold a public meeting with external stakeholders approximately 10 days after issuance of the bulletin to further explain the staff's rationale for issuing the bulletin. In addition, the staff plans to continue to meet with the industry, in public meetings, to discuss the industry's proposed inspections, ongoing and

planned research, and ongoing demonstration programs. The staff is currently reviewing an industry-wide inspection program.

The staff intends to issue this bulletin on August 9, 2002.

COORDINATION:

The staff briefed the Committee to Review Generic Requirements (CRGR) on the proposed bulletin on July 31, 2002, and has addressed the CRGR's comments. The CRGR has endorsed this bulletin.

The Office of the General Counsel (OGC) has reviewed this bulletin and has no legal objections to its content. In addition, OGC has determined that the proposed does not constitute a "rule" under the Small Business Regulatory Enforcement Fairness Act of 1996.

***/RA by William F. Kane Acting For/***

William D. Travers  
Executive Director  
for Operations

Attachment:

Proposed NRC Bulletin, "Reactor Pressure Vessel Head And Vessel Head Penetrations Inspection Programs"

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Executive Director  
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Attachment:

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\*see previous concurrence

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