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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

January 31, 1986

IE INFORMATION NOTICE NO. 86-05: MAIN STEAM SAFETY VALVE TEST FAILURES AND
RING SETTING ADJUSTMENTS

Addressees:

All pressurized-water-reactor (PWR) facilities holding an operating license (OL) or a construction permit (CP).

Purpose:

This notice is being provided to alert recipients of a potentially significant problem pertaining to spring-actuated main steam safety valves that may possess less than the full-rated flow capacity. It is expected that recipients will review the information for applicability to their facilities and consider actions, if appropriate, to preclude a similar problem at their facilities. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

NRC is continuing to obtain and evaluate pertinent information. If specific actions are determined to be required by NRC, an additional notification will be made.

Description of Circumstances:

In the fall of 1984, Public Service of New Hampshire sent the main steam safety valves (MSSVs) for its Seabrook plant to Wyle Laboratories for full-flow testing to determine the proper vent stack size. To determine full flow, Wyle measured disc travel of the model number 6R10 valves manufactured by the Crosby Valve and Gage Company. The results of the tests indicated that the valves could not achieve the required disc travel with the factory-set ring setting (+155 notches). The disc travel achieved was 50% of the full lift necessary to develop required steam flow capacity. Adequate lift was not attainable even with the largest diameter tailpipe.

Additional tests were done in July 1985 to determine the appropriateness of the ring settings. Specifically, the tests were to determine if the "as-shipped" ring settings of the valves would allow the required disc travel with minimum tailpipe backpressure and to determine the effects on valve disc travel for a range of backpressures between 180 and 390 psig. During these tests, the upper (guide) ring setting was adjusted from +155 to 0 and then to +25 to achieve the required disc travel. This is a substantial adjustment. Subsequently, the


licensee consulted with the valve manufacturer and agreed on ring settings of +25 for the guide ring and -25 (the original setting) for the lower (nozzle) ring (see figure 1).

Full flow, full size tests of the sort described in this notice are not normally performed by the licensee or valve vendor for large secondary safety valves, nor are they required by the ASME Code, Section III. Instead the valves are certified by extrapolations on data from tests of smaller valves.

The MSSVs on most PWRs, while not necessarily the same model or manufacturer as those at Seabrook, are generally at the upper end of the valve size range. This raises the concern that full-sized flow demonstration may never have been performed for many MSSVs and these may have incorrect ring settings. In addition, similar problems with ring settings have been found when full-size tests were performed for PWR primary safety valves. Thus, these MSSVs may not be capable of providing full-relief capacity in accordance with facility design requirements.

NRC is continuing to obtain and evaluate pertinent information. If specific actions are determined to be required by NRC, an additional notification will be made.

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the Regional Administrator of the appropriate regional office or this office.


Edward L. Jordan, Director
Division of Emergency Preparedness
and Engineering Response
Office of Inspection and Enforcement

Technical Contact: Mary S. Wegner
(301) 492-4511

Attachments:

1. Figure 1, Typical Main Steam Safety Valve
2. List of Recently Issued IE Information Notices

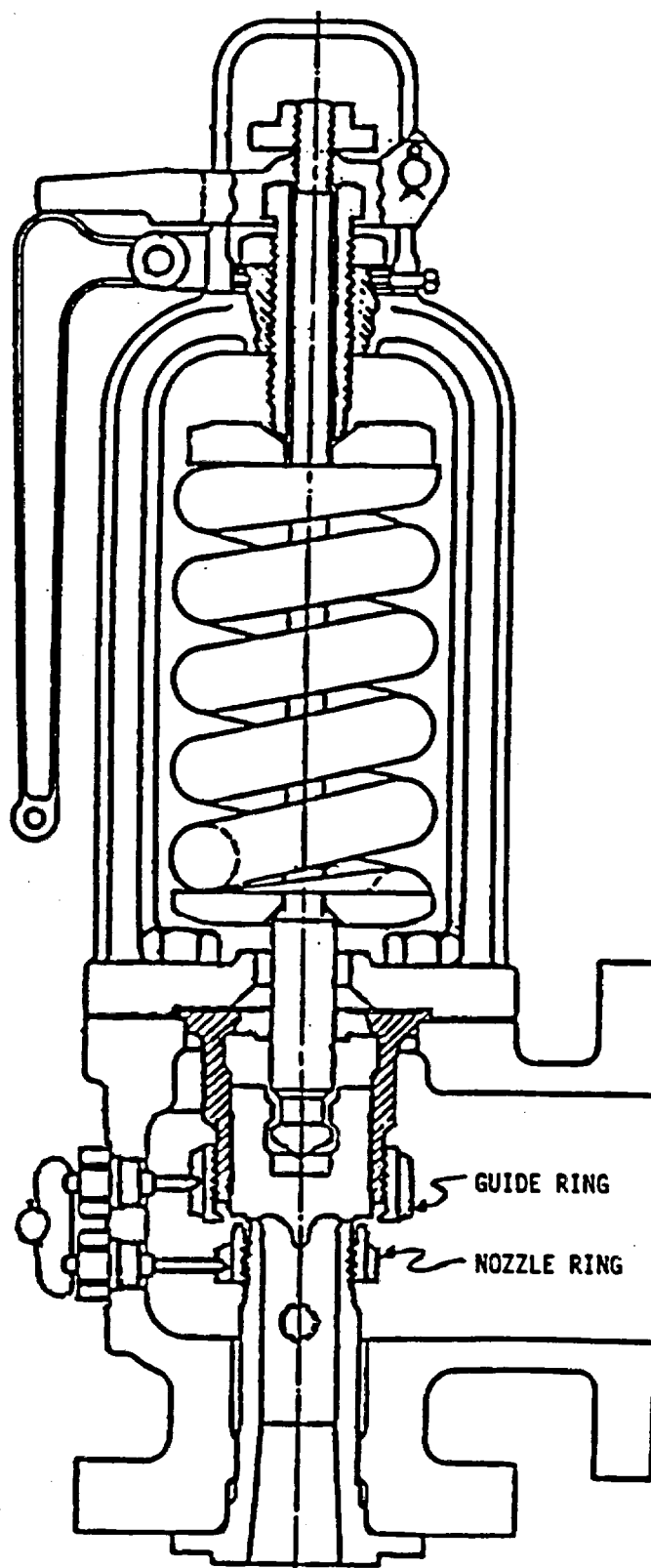


FIG. 1

TYPICAL MAIN STEAM SAFETY VALVE

LIST OF RECENTLY ISSUED
IE INFORMATION NOTICES

| Information Notice No. | Subject | Date of Issue | Issued to |
|---------------------------|---|------------------|---|
| 86-04 | Transient Due To Loss Of Power To Integrated Control System At A Pressurized Water Reactor Designed By Babcock & Wilcox | 1/31/86 | All power reactor facilities holding an OL or CP |
| 86-03 | Potential Deficiencies In Environmental Qualification Of Limitorque Motor Valve Operator Wiring | 1/14/86 | All power reactor facilities holding an OL or CP |
| 86-02 | Failure Of Valve Operator Motor During Environmental Qualification Testing | 1/6/86 | All power reactor facilities holding an OL or CP |
| 86-01 | Failure Of Main Feedwater Check Valve Causes Loss Of Feedwater System Integrity And Water-Hammer Damage | 1/6/86 | All power reactor facilities holding an OL or CP |
| 85-101 | Applicability of 10 CFR 21 To Consulting Firms Providing Training | 12/31/85 | All power reactor facilities holding an OL or CP |
| 85-100 | Rosemount Differential Pressure Transmitter Zero Point Shift | 12/31/85 | All power reactor facilities holding an OL or CP |
| 85-99 | Cracking In Boiling-Water- Reactor Mark I And Mark II Containments Caused By Failure Of The Inerting System | 12/31/85 | All BWR facilities having a Mark I or Mark II containment |
| 85-98 | Missing Jumpers From Westing- house Reactor Protection System Cards For The Over- Power Delta Temperature Trip Function | 12/26/85 | All Westinghouse designed PWR facilities holding an OL or CP |

OL = Operating License
CP = Construction Permit