

RAS 8572

September 10, 2004

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE SECRETARY

In the Matter of

ENTERGY NUCLEAR VERMONT YANKEE L.L.C.
and ENTERGY NUCLEAR OPERATIONS, INC.

(Vermont Yankee Nuclear Power Station)

Docket No. 50-271

DOCKETED
USNRC

Emile L. Julian
Assistant for Rulemakings and Adjudications
Office of the Secretary
United States Nuclear Regulatory Commission
Washington, DC 20555-0001

October 5, 2004 (12:15PM)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Dear Mr. Julian,

Enclosed please find for filing in the above captioned matter an original and two copies, of page 27 of NEW ENGLAND COALITION'S SUPPLEMENTAL EXHIBIT "G", ENTERGY REPORT CR-VTY-2004-0918, "MSIV AS-FOUND LLRTs SHOW AND ADVERSE TREND."

The subject, "page 27" was inadvertently omitted from EXHIBIT "G" because of a copy machine malfunction at New England Coalition's copy service.

New England Coalition sincerely regrets any confusion or inconvenience this inadvertent omission and late submission of "page 27" may have caused NRC or the parties. Copies are provided via Fax to the parties and via First Class Mail to the entire service list.

Thank you for your consideration,

Sincerely,



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Template = SECY-037

SECY-02

CR-VTY-2004-0918
“MSIV As-Found LLRTs Show An Adverse Trend”
Adverse Trend Common Cause Analysis

ATTACHMENT 6
Evaluation of LLRT failure mechanisms

The root cause analysis performed for CR-VTY-2002-2211/2212 identified the following potential mechanisms or factors that could lead to LLRT failures. The discussions have been updated to make them current with available information as of RFO-24.

- **Seat Geometry:** Vermont Yankee (Rockwell/Edwards) seat geometry is cone-in-cone with full seat contact. Although this geometry is less forgiving than others with respect to seat leakage should misalignment occur, seat geometry as a parameter was judged to be not a primary contributor to high leakage.
- **Inadequate Actuator Loading:** Inadequate actuator loading was considered a potential contributor to MSIV leakage since increased actuator loading can reduce seat leakage. It should be noted that net seat loading is reduced on the inboard valve when LLRT test pressure is applied between the valves. Actuator loading, although not a primary contributor to high leakage, may improve leakage performance under low leakage conditions if increased.
- **MSIV Aging:** The age of MSIVs in BWR plants varies widely in terms of actual life and service time. This was considered a potential contributing factor to LLRT failure since it can be postulated that the effect of wear on valve and actuator internals as a function of time can have an adverse impact on LLRT performance. This theory was subsequently dismissed, however, on the basis that the LLRT failure data clearly show that MSIVs of all ages have had failures without significant differences in the ratio of tests passed to tests failed. The concept of “age” in a BWR MSIV is somewhat specious anyway. Since MSIVs are routinely disassembled, examined, refurbished, and reassembled to original manufacturer’s specifications, it isn’t clear what could “age” in an MSIV. At VY, there is an apparent correlation between service time and LLRT failure. This is the only age-related correlation that could be established.
- **Valve Damage:** Valve damage has resulted from steam flow and improper maintenance; however, steam cutting or erosion of the main seats has not been observed during valve inspections since 1996. Flow-induced damage can include valve stem bending, valve stem disc separation and damage to the guide ribs. Improper maintenance has resulted in the galling of the yoke rods, valve stem and pitting of the valve stem, as well as damage to the valve seat. Damage to the stem affects stem leak tightness, which is not related to main seat leakage but could affect valve cycle time and could reduce the effectiveness of the actuator force. These comments apply to BWRs generally, but not to VY specifically. There are no documented or reported instances at VY of stem damage affecting measured MSIV stroke time.
- **LLRT Pressurization Method:** Currently, the most common method among BWRs for applying LLRT pressure is to pressurize between the inboard and outboard MSIVs. This is considered a potential LLRT failure contributor for