DD-11-06

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Eric J. Leeds, Director

In the Matter of	)	Docket No. 50-271
	)	
ENTERGY NUCLEAR VERMONT YANKEE, LLC	)	License No. DPR-28
and	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	
	)	
Vermont Yankee Nuclear Power Station	)	

DIRECTOR'S DECISION UNDER 10 CFR 2.206

I. INTRODUCTION

By letter dated January 14, 2011, Mr. Thomas Saporito has requested that pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 2.206, "Requests for Action under this Subpart," the U.S. Nuclear Regulatory Commission (NRC) take action with regard to the Vermont Yankee Nuclear Power Station (VY). Mr. Saporito requested in his petition that the NRC: (1) issue a confirmatory order requiring the licensee to immediately bring the reactor in question to a cold shutdown mode of operation; (2) issue a civil penalty against the licensee; (3) remove the licensee's employees responsible for this matter from NRC licensed activities for a period of no less than 5 years; and (4) perform an immediate NRC investigation and inspection of the VY nuclear facility to ensure that all nuclear safety-related systems are properly operational in accordance with the licensee's Technical Specifications (TS) and NRC License. The Petition Review Board (PRB) met on January 24, 2011, to discuss the petition and denied the request for immediate action to bring VY to a cold shutdown mode of operation and to perform an immediate NRC investigation and inspection of VY because the PRB did not identify

any urgent public health and safety concerns that would warrant an immediate shutdown and NRC investigation and inspection. On January 24, 2011, Mr. Saporito was informed of the PRB's decision on the immediate action, and he requested an opportunity to address the PRB before its initial meeting to provide supplemental information for the Board's consideration. By teleconference on January 26, 2011, Mr. Saporito provided information to the PRB as further explanation and support for the petition. A copy of the transcript is available in the NRC's Agencywide Documents Access and Management System (ADAMS) under Accession No. ML110330256. The PRB met on February 2, 2011, to discuss the petition and made an initial recommendation to accept the petition, in part, concerning the failure of relief valves because this issue met the criteria for review. On February 8, 2011, Mr. Saporito was informed of the PRB's initial recommendation to accept the petition, in part, and Mr. Saporito requested another opportunity to address the PRB to provide comments on the PRB's initial recommendation and additional information in support of the petition. By teleconference on February 14, 2011, Mr. Saporito provided information to the PRB in support of his request for an immediate shutdown and an immediate NRC investigation and inspection of VY. The PRB confirmed its initial recommendation because the additional information provided on February 14, 2011, did not change the PRB's decision to deny the request for immediate action.

In an acknowledgment letter dated March 28, 2011 (ADAMS Accession No. ML110601262), the NRC informed the petitioner that the petition was accepted, in part, for review under 10 CFR 2.206, and had been referred to the Office of Nuclear Reactor Regulation for appropriate action. After full consideration of the petition, the Office of Nuclear Reactor Regulation has decided to accept the petition, in part, concerning the inoperability of main steam safety relief valves (SRVs) due to leakage through the shaft to piston thread seals. This issue met the criteria for review.

Copies of the petition are available for inspection at the Commission's Public Document Room (PDR) at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland, and from the NRC's Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room on the NRC Web site at http://www.nrc.gov/reading-rm/adams.html under ADAMS Accession No. ML110190233. Persons who do not have access to ADAMS or who have problems in accessing the documents in ADAMS should contact the NRC PDR reference staff by telephone at 1-800-397-4209 or 301-415-4737, or by e-mail to PDR Resource@nrc.gov.

II. DISCUSSION

The petition cited problems related to inoperability of main steam SRVs due to leakage through the shaft to piston thread seals. On August 1, 2011, the petitioner provided comments on the Proposed Director's Decision, in which the petitioner stated "The licensee's failure to timely notify the NRC about the subject (relief valves) failure and inoperability under 10 CFR 50.72, is clearly a violation of NRC regulations and requirements which warrants escalated enforcement action on the part of NRC to be taken against the licensee." The petitioner also cited as stated in 10 CFR 50.72(b) "Non-emergency events," as a basis for the petition request, which states "… the licensee shall notify the NRC as soon as practical and in all cases within one hour of the occurrence, any deviation from a plant's technical specification authorized pursuant to Section 50.54(x) of this part." As stated in 10 CFR 50.54(x), "A licensee may take reasonable action that departs from a license condition or a technical specification (contained in a license issued under this part) in an emergency when this action is immediately needed to protect the public health and safety and no action consistent with license conditions and technical specifications that can provide adequate or equivalent protection is immediately apparent."

This event does not fall under the requirements of 10 CFR 50.72(b) because the licensee did not intentionally depart from a technical specification. The relief valve failure and inoperability was the as-found component condition during the refueling outage, which potentially affected the ability of the SRVs to satisfy design actuation requirements. This event met the requirements of 10 CFR 50.73, "Licensee event report [LER] system." Due to the redundancy in Automatic Depressurization System (ADS) design, the availability of the high-pressure core injection system, and the availability of a safety-class backup nitrogen supply, the ability to depressurize the reactor was maintained, and there was no potential adverse impact to public health and safety. Therefore, no reports were required pursuant to 10 CFR 50.72. On December 22, 2010, under the timely LER reporting requirements of 10 CFR 50.73(a)(2)(i)(B), Entergy submitted the LER 05000271/2010-002-00&01: Inoperability of Main Steam Safety Relief Valves Due to Degraded Thread Seals, within 60 days after the discovery of the event that was determined to be reportable on October 25, 2010. The NRC resident inspectors reviewed the LER 05000271/2010-002-00&01, and documented their inspection results in the NRC Integrated Inspection Report 05000271/2011002 dated April 29, 2011 (ADAMS Accession No. ML111190386), which also included the LER closeout review and two Licensee Identified Violations related to the discovery of the SRV issue.

During the 2010 refueling outage, the pneumatic actuators for the four main steam SRVs were tested and leakage was identified through the shaft-to-piston thread seal that was in excess of the design requirement on two of the four SRVs. Material testing determined that the apparent cause of the degraded thread seal condition was thermal degradation. The thread seals were replaced and tested on all four SRVs prior to startup from the 2010 refueling outage. Entergy determined that this potentially affected the ability of the SRVs to perform their manual and automatic depressurization function, as required by TSs, since the leakage impacted the ability of the SRVs to satisfy design actuation requirements. Entergy determined that there was firm

evidence that this condition may have existed for a period of time greater than allowed by TSs, and therefore this event was reportable under the requirements of 10 CFR 50.73(a)(2)(i)(B). The inspectors reviewed the subject LER 05000271/2010-002-00&01, the as-found condition during the refueling outage, the subsequent material testing and analysis, and Entergy's evaluation of the condition. A violation of very low safety significance (Green) was identified by the licensee. The enforcement aspects of this finding are discussed below.

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as non-cited violations.

TS 3.5.F, "Automatic Depressurization System," allows up to one of four SRVs in the automatic depressurization system to be inoperable for up to 7 days at any time the reactor steam pressure is above 150 psig with irradiated fuel within the vessel, or an orderly shutdown of the reactor shall be initiated and the reactor pressure shall be reduced to less than 150 psig within 24 hours. In addition, TS 3.6.D, "Safety and Relief Valves," requires the reactor to be shut down and pressure brought below 150 psig within 24 hours with two (2) or more SRVs inoperable. Contrary to the above, Entergy determined that two (2) of the four (4) SRVs were inoperable for a period of time greater than allowed by TSs. This determination was based on pneumatic actuator thread seal leakage that was identified during testing of the pneumatic SRV actuators in the 2010 refueling outage. Entergy determined the leakage to be in excess of design requirements. This condition has been entered in the licensee's corrective action program and corrective actions have been developed.

The NRC inspectors determined that this finding was more than minor because it adversely affected the Mitigation Systems cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences. The NRC inspectors determined that the function for core decay removal was affected, since the safety

function of the ADS valves is to depressurize the reactor to allow for low-pressure coolant injection. The inspectors determined that this finding was not greater than Green, because subsequent laboratory analysis and engineering evaluation documented in Entergy Operability Recommendation concluded that sufficient margin was available in the safety-class backup supply to the pneumatic actuation system. The NRC inspectors reviewed Entergy's laboratory results and Operability Recommendation, and concluded that the ADS function would have been met under the worst case leakage for all design-basis conditions.

III. CONCLUSION

Based on the above, the Office of Nuclear Reactor Regulation has decided to deny petitioner's request to bring VY to a cold shutdown mode of operation and to perform an immediate NRC investigation and inspection of VY, but has granted the petition, in part, concerning the inoperability of main steam SRVs. The NRC Integrated Inspection Report 05000271/2011002 dated April 29, 2011, documented an LER closeout review and two Licensee Identified Violations related to the discovery of the SRV issue. Petitioner's concern regarding the inoperability of SRVs at VY has been adequately resolved such that no further action is needed.

As provided in 10 CFR 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. As provided for by this regulation, the Decision will constitute the final action of the Commission 25 days after the date

of the Decision unless the Commission, on its own motion, institutes a review of the Decision within that time.

Dated at Rockville, Maryland, this 9th day of September 2011.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Eric J. Leeds, Director
Office of Nuclear Reactor Regulation