

January 10, 2006

Mr. Andrew Smith  
126 Atkinson Street  
Bellows Falls, VT 05101

Dear Mr. Smith:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am writing in response to your letter of December 3, 2005, in which you expressed concerns regarding the proposed power uprate and potential license renewal application for the Vermont Yankee Nuclear Power Station (Vermont Yankee). Specifically, your letter asked the NRC to conduct an independent safety assessment of Vermont Yankee, and mentioned unexpected plant shutdowns, technical issues with the steam dryer and cooling pumps, accounting for spent fuel, and recent flooding near Vermont Yankee.

In a letter to the Vermont Public Service Board (PSB) dated May 4, 2004, Chairman Nils J. Diaz described the NRC's approach in response to the PSB's request for an independent engineering assessment of Vermont Yankee. As noted in the letter, the NRC staff has concluded that the detailed technical review of the proposed amendment, combined with the inspections prescribed by the reactor oversight process, as enhanced by an improved engineering inspection, provides the most effective method of informing the staff decision on whether Vermont Yankee could operate safely under uprated power conditions.

On November 2, 2005, the NRC staff issued its draft safety evaluation (SE) documenting the results of the technical review for the proposed power uprate. A copy of this 330-page report is available on the NRC's web site at <http://adamswebsearch.nrc.gov/dologin.htm> by searching for accession number ML053010167. Section 1.6 of the SE and other sections referred to therein discuss the results of the engineering inspection that was completed in September 2004. The NRC staff has spent over 9,000 hours on the technical review of the proposed power uprate. In addition, over 900 hours were spent on the engineering inspection effort. We believe that the Vermont Yankee engineering inspection responded appropriately to the Vermont PSB's request to conduct an independent assessment of Vermont Yankee.

You also mentioned unexpected plant shutdowns in your letter, related to events in June 2004 and July 2005. These events received significant scrutiny by the NRC. On June 18, 2004, an electrical fault on the 22 kilovolt (kV) electrical system forced the reactor to automatically shut down from 100% power. Arcing and heat generated during the fault caused a main transformer fire. The fire was extinguished through the combined efforts of the automatic fire suppression system, the site's fire brigade, and the local volunteer fire department. The NRC's resident inspectors immediately responded to the event, and the Region I Incident Response Center was staffed to support the residents and follow Entergy Nuclear Operations, Inc.'s (Entergy's) response to the fire. The fire caused no damage to safety systems and Entergy restarted the plant on July 6, 2004, after making necessary repairs. In its November 8, 2004, quarterly inspection report, the NRC discussed Entergy's failure to incorporate operating experience into preventive maintenance of the 22 kV electrical system. Entergy is managing this issue through its corrective action program. The other shutdown occurred on July 25, 2005, when the reactor

shut down automatically as a result of an insulator failure in the 345 kV switchyard. A forensic exam of the insulator revealed a previously-undetectable crack in the same location as a manufacturing defect. The insulator was replaced and the plant restarted on July 28, 2005. NRC inspectors reviewed the event and did not discover any significant performance deficiencies.

Your letter also stated concerns about technical uncertainties regarding the steam dryer. This issue is addressed in Section 2.2.6 of the NRC's power uprate draft safety evaluation. Entergy has modified the steam dryer at Vermont Yankee to improve its capability to withstand potential adverse flow effects that could result from operation at power uprate conditions. In addition, if the power uprate is approved, a condition would be added to the Vermont Yankee license that would require monitoring, evaluating, and taking prompt action in response to potential adverse flow effects as a result of operation at uprated power conditions.

Your letter also indicated technical concerns about cooling pumps. The proposed power uprate for Vermont Yankee credits increased pressure in containment following an accident to ensure the emergency core cooling system pumps will have adequate net positive suction head to function properly. The NRC staff would allow this credit to be taken only if there is reasonable assurance that safety will be maintained. As discussed in Section 2.6.5 of the NRC's power uprate draft safety evaluation, the staff found that the crediting of containment accident pressure for Vermont Yankee was acceptable and is based on conservative calculations.

In your letter, you also mentioned past problems with accounting for spent fuel at Vermont Yankee. The NRC performed a special inspection in response to Entergy's April 2004 report that two spent fuel rod pieces were not in the location specified in its nuclear material inventory records. On July 13, 2004, Entergy notified the NRC that the fuel segments had been found in a container in the spent fuel pool that had been thought to be part of an in-pool structure. The NRC determined that between January 1980 and July 2004, Entergy and its predecessor did not keep adequate inventory records of two spent fuel rod pieces, did not follow its written procedures when the two spent fuel rod pieces were moved to a fuel storage liner, and did not conduct adequate periodic physical inventories of the two spent fuel rod pieces. On June 22, 2005, the NRC staff issued a notice of violation to Entergy. However, because the two spent fuel rod pieces remained in the Vermont Yankee spent fuel pool the entire time the violation existed, there was no actual safety consequence.

Finally, your letter discussed concerns about Vermont Yankee remaining at power during recent flooding in the region. The NRC has considered this issue as a result of a petition submitted in October 2005. The petitioner requested that Vermont Yankee be required to close or reduce power temporarily because of flooding effects on evacuation routes. A proposed Director's Decision dated December 7, 2005, is publicly available on the NRC's website (accession number ML053140216) and is currently being reviewed by the Commission, the petitioner, and Entergy. This proposed denial of the petition cites the Federal Emergency Management Agency (FEMA) requirement that local responders demonstrate the capability to contend with unexpected events that may impede an evacuation route. During the flooding on October 8 and October 9, 2005, an alternate route was identified to avoid a damaged bridge on an evacuation route. Because New Hampshire established potential alternate evacuation routes and safe operation of Vermont Yankee was not threatened, it was not necessary for the reactor to shut down or reduce power in response to the flooding.

The NRC's primary mission is to ensure adequate protection of public health and safety. We have taken great care in conducting the technical reviews and inspections regarding the requested Vermont Yankee power uprate in order to identify and address any potential safety concerns for operating the plant at uprated power conditions. Additionally, Entergy has stated that it intends to submit an application for license renewal in January 2006. The NRC staff will approach that review with the high level of scrutiny that we apply to all license renewal applications. The NRC will not approve the Vermont Yankee power uprate, or any proposed change to any plant license, unless our technical staff can conclude that adequate protection of public health and safety will be ensured. I hope that this letter satisfactorily addresses your concerns.

Sincerely,

*/RA/*

Darrell J. Roberts, Chief  
Plant Licensing Branch 1-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

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