

RAS M-181

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August 12, 2008 (11:00am)

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EXHIBIT C

U.S. NUCLEAR REGULATORY COMMISSION
In the Matter of Entergy Nuclear Vermont Yankee LLC
Docket No. 50-271-LR Official Exhibit No. C
OFFERED by: Applicant/Licensee Intervenor _____
Other _____
IDENTIFIED on 7/23/08 Witness/Panel Hsu/Rowley
Action Taken: ADMITTED REJECTED WITHDRAWN
Reporter/Clerk: MAC

Template Secy-027

DS-03

RAS 11759

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DOCKETED
USNRC

May 26, 2006

May 30, 2006 (3:30pm)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attn: Rulemaking and Adjudications Staff

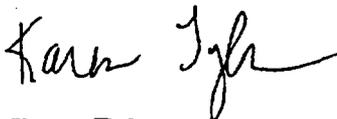
Re: *In the matter of* ENTERGY NUCLEAR VERMONT YANKEE, LLC and ENTERGY
NUCLEAR OPERATIONS, INC., Vermont Yankee Nuclear Power Station License
Renewal Application, Docket No. 50-271

Dear Sir or Madam:

Please find enclosed for filing in the above stated matter New England Coalition's
Petition for Leave to Intervene, Request for Hearing, and Contentions; and the Notice of
Appearance on behalf of New England Coalition of Shems Dunkiel Kassel & Saunders PLLC by
attorneys Ronald A. Shems, and Karen Tyler.

Thank you for your attention to this matter.

Sincerely,



Karen Tyler

Enclosures

cc: see attached Certificate of Service

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of

ENTERGY NUCLEAR VERMONT YANKEE, LLC)
and ENTERGY NUCLEAR OPERATIONS, INC.) NO. 50-271
Vermont Yankee Nuclear Power Station)
License Renewal Application)

DECLARATION OF DR. JORAM HOPENFELD

1. My name is Dr. Joram Hopenfeld. The New England Coalition (NEC) has retained me as an expert witness in proceedings concerning the application of Entergy Nuclear Operations, Inc. ("Entergy") to renew its operating license for Vermont Yankee Nuclear Power Station ("Vermont Yankee") for twenty years beyond the current expiration date of March 21, 2012.
2. I am a mechanical engineer and hold a doctorate in engineering. I have 45 years of professional experience in the fields of instrumentation, design, project management, and nuclear safety, including 18 years in the employ of the U.S. Nuclear Regulatory Commission. My curriculum vitae is attached to this declaration as Attachment A.
3. I have reviewed Entergy's License Renewal Application, and such publicly available documents as are relevant to the subjects of my declaration.

CONTENTION TWO

4. Paragraphs 4 - 14 of this declaration concern NEC's "Contention Two." I refer to the following documents:

22. The Entergy program to manage the effects of Flow-Accelerated Corrosion (FAC) is based on NUREG 1801 § XI.M17 and EPRI Report NSAC-202L-R2. License Renewal Application Table 3.4.1 ¶ 3.4.1-29, and Appendix B § B.1.13. These guidance documents recommend use of a computer code, CHECWORKS, to recommend the scope and frequency of in-service inspections. It can be reasonably deduced that Entergy proposes to use the CHECWORKS code to manage FAC during the new license term.

23. Because Entergy has recently increased the operating power level of its plant by 20%, CHECWORKS would require additional inputs before it can be used at the VY plant as an adequate FAC management tool. Consequently, the proposed program, as presented in the Entergy Application, will not be valid throughout the entire period of the extended plant operation.

24. The theoretical basis of FAC is not completely understood; however, it is well established that turbulence intensity, steam quality, material compositions, oxygen content and coolant pH are the main variables that affect FAC. The CHECWORKS computer code is not a mechanistic code; it is an empirical code that must be updated continuously with plant-specific data. Inspection results are routinely used as inputs to the code. The code can be used to predict pipe wall thinning as long as plant parameters (velocity, coolant chemistry, etc.) do not change drastically and the data has been collected for a long period of time. It is important to realize that wall thinning rate from FAC is not necessarily constant with time, and therefore a considerable number of cycles are needed to establish the FAC rate on a given component at a particular plant. Since Vermont Yankee has recently increased the coolant flow rate by 20%, which also

significantly accelerates local wall thinning, it would take at least 10-15 years before CHECWORKS can be benchmarked with the Vermont Yankee inspection data.

25. The inability to reliably predict wall thinning from FAC has been very costly. In 1986, a feed water pipe elbow ruptured at the Surry Nuclear plant. There were several fatalities and the reactor was down for several months. The accident resulted from severe pipe walls thinning due to FAC (References a & b). In 1991 and in 1993, the feed ring and the J tubes at San Onofre's steam generators (References c and d) failed from FAC. In 1997, extraction steam piping ruptured at the Fort Calhoun Station (Reference e). In July 2004, several workers were killed at the Mihama nuclear power plant due to FAC in the secondary loop (Reference f).

26. The above is only a partial list of the failures that occurred from FAC in nuclear plants. This list alone, however, is sufficient to demonstrate that CHECWORKS (developed in 1987) has not been successful in averting major catastrophes and costly outages. The prediction of FAC is an art not a science and must be obtained empirically and with expert engineering judgment. The above plant experience indicates that a lack of proper FAC controls can lead to very serious consequences.

27. The key to a valid FAC program is the ability to adequately specify the frequency of inspections. CHECWORKS cannot be used to provide adequate guidance regarding inspection frequencies. Therefore, Entergy cannot assure the public that the minimum wall thickness of carbon steel piping and valve components will not be reduced by FAC to below the ASME code limits during the period of extended operation.