

May 19, 2000

Mr. Samuel L. Newton
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, VT 05302-7002

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON VERMONT YANKEE
NUCLEAR POWER STATION INDIVIDUAL PLANT EXAMINATION OF
EXTERNAL EVENTS (IPEEE) SUBMITTAL (TAC NO. M83689)

Dear Mr. Newton:

Based on our ongoing review of the Vermont Yankee Nuclear Power Station (Vermont Yankee) Individual Plant Examination of External Events (IPEEE) submittal and your responses to our previous requests for additional information (RAIs), we are unable to conclude at this time that Vermont Yankee has met the intent of Supplement 4 to Generic Letter 88-20. Therefore, we have developed the attached RAIs (additional or follow-up to previous RAIs) related to the fire analysis of the IPEEE. The RAI on fire was developed by our contractor Sandia National Laboratories (SNL). All questions were reviewed by the "Senior Review Board" (SRB). The SRB is comprised of NRC staff and consultants (SNL) with probabilistic risk assessment expertise in external events.

We have not completed our review of the seismic and high winds, flood, and other external events (HFO) areas of the IPEEE submittal. If RAIs are needed in these areas, they will be sent separately following completion of the ongoing reviews.

We request that you respond to the enclosed RAI within 60 days.

Sincerely,

/RA/

Richard P. Croteau, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure: RAI

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION (RAI) ON VERMONT YANKEE
INDIVIDUAL PLANT EXAMINATION OF EXTERNAL EVENTS (IPEEE) SUBMITTAL

Fire

Supplemental RAI #1:

The IPEEE submittal identified a proposed improvement to relocate or otherwise protect the control cables for Vernon Tie Breakers 3V, 4V, and 3V4 in the east and west Switchgear Rooms from fires that are likely to damage offsite power control cables. This improvement was credited in the fire analysis, but its evaluation was planned; i.e., an implementation decision had not been made. Since the submittal and the response to original RAI #2 identified the east and west Switchgear Rooms as the second and third most dominant risk contributors, this improvement may reflect a risk reduction which is not actually reflected in the hardware configuration that is present in the event of a fire.

Please provide the status of the proposed improvement to the Vernon Tie Breakers 3V, 4V, and 3V4 in the east and west Switchgear Rooms. If this improvement has not yet been implemented and will not be completed in the near future, please reevaluate the fire scenarios for the east and west Switchgear Rooms without crediting the improvement. Provide the results of the reanalysis, including revised core damage frequency (CDF) estimates for the applicable fire scenarios.

Supplemental RAI #2:

The response to original RAI #5 stated that the detailed evaluation of compartment RB3 in the reactor building included plant walkdowns and internal inspections of specific electrical cabinets/panels to determine those cabinets which do not propagate a fire. The result of the evaluation was that non-vented panels and cabinets of low voltage (<480V) were "judged not to propagate fire (non-fire hazard) and were eliminated from the detailed target-set evaluations." This indicates that non-vented panels, regardless of voltage, were screened, and low voltage cabinets (< 480V), vented or non-vented, were screened. The original IPEEE submittal did not state that panels and cabinets in RB3 were screened on this basis. If panels and cabinets were so screened, fire risk could have been significantly underestimated due to the failure to consider potential propagation of a fire outside a cabinet boundary.

The screening that was apparently used is not consistent with the Electric Power Research Institute (EPRI) guidance for responding to Generic RAI Question #11 "Guidance for Development of Response to Request for Additional Information on Fire IPEEE," EPRI, May 1999. Based on this guidance, cabinets with voltage less than 480V cannot be screened if they are vented. To account for the possibility that cabinet doors may distort as the result of a high energy fire, panels with voltage greater than 480V cannot be screened regardless of venting conditions.

Please clarify the panel and cabinet screening guidance/criteria that were used in the analysis of compartment RB3. Compare these criteria to the EPRI panel and cabinet screening

Enclosure

guidance per the revised guidance for response to Generic RAI Question #11. If the applied criteria were not consistent with the revised guidance, identify and reevaluate the affected compartments using the revised EPRI screening criteria. Reanalyze those panels and cabinets that do not meet these screening criteria and provide the results, including revised CDF estimates, for the applicable fire scenarios. As part of the reanalysis, include the factors (ignition frequencies, severity factors, partitioning factors, weighting factors, etc.) that were used to estimate fire ignition frequencies, damage probabilities, and a discussion of the conditional core damage probability (CCDP) for each fire scenario in RB3.

Supplemental RAI #3:

The response to original RAI #5 addressed cabinet/panel fires in compartment RB3. However, the response did not discuss the process and assumptions that were used to treat cabinet and panel fires in the other areas that were analyzed in detail. The original IPEEE submittal also does not include this information. If panels and cabinets in these 9 areas (10 including the Turbine Building) were screened using a process similar to that employed for compartment RB3, fire risk could have been significantly underestimated due to fire propagation as noted in Supplemental RAI #2.

Please compare the screening criteria used in the IPEEE to the EPRI Generic RAI Response #11 on panel and cabinet screening guidance. If compartments were screened on a basis which is not consistent with the EPRI guidance, identify and reevaluate the affected compartments using the revised EPRI screening criteria. Also, provide the results, including revised CDF estimates, for the applicable fire scenarios for each area that has been reanalyzed. As part of the reanalysis, include the factors (ignition frequencies, severity factors, partitioning factors, weighting factors, etc.) that were used to estimate fire ignition frequencies, damage probabilities, and a discussion of the CCDP for each fire scenario in each area that has been reanalyzed.

Vermont Yankee Nuclear Power Station

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