

November 20, 1997

Mr. Donald A. Reid  
Senior Vice President, Operations  
Vermont Yankee Nuclear Power Corporation  
Ferry Road  
Brattleboro, VT 05301

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE EMERGENCY DIESEL  
GENERATOR SKID MOUNTED PIPING - VERMONT YANKEE NUCLEAR POWER STATION  
(TAC NO. M99802)

Dear Mr. Reid:

By letter dated November 4, 1997, Vermont Yankee Nuclear Power Corporation submitted calculations to support its operability determination of the emergency diesel generators at Vermont Yankee Nuclear Power Station (VYNPS). The operability determination was developed to support continued VYNPS operation in accordance with Generic Letter 91-18.

The NRC staff has reviewed the submittal, and, based on its review, finds that responses to the enclosed request for additional information are needed before we can complete our review.

Please provide your responses as soon as possible, but no later than 15 days from the date of this letter. If you have any questions regarding this matter, please contact me at (301) 415-1496.

Sincerely,

Original signed by Craig Smith for

Kahtan N. Jabbour, Sr. Project Manager  
Project Directorate I-3  
Division of Reactor Projects - I/II  
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure: Request for Additional  
Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION BY THE

OFFICE OF NUCLEAR REACTOR REGULATION

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

1. You indicated that the subject weld joint design and fabrication did not meet the requirements of B31.1. Please provide the bases of justification for accepting such components for service.
2. What are the pre-service and in-service inspection requirements for the subject weld joints?

Do you have records of the weld repairs performed to the subject diesel generator lube oil piping? If yes, based on weld joint #2 cracking experience, address whether or not the repaired welds have been or will be inspected to ensure their structural integrity.

3. Provide a sketch with dimensions specified for each weld joint where cracks were found; and also label each sketch to show: (a) type of components, (b) seal weld, (c) overlay weld, (d) slags that initiate the crack, (e) location of shrinkage crack and fatigue crack, (f) length (OD and ID) and depth of crack, (g) repair weld, and (h) location of the crack that was weld repaired.
4. A throughwall crack on weld joint #2 was repaired in 1996. What was the root cause for the presence of this crack? Describe in detail how this crack was repaired.
5. In your stress analysis report, the vibratory stresses were evaluated based on the vibration data from the "A" diesel generator. Please provide the vibration data for the "B" diesel generator and compare it to that from the "A" diesel generator? If the data is not available, provide justification or reasons why the data was not taken.
6. You have reported that the fatigue striation was found on the fracture surface of weld joint #2 and the driving force for propagating the crack throughwall is attributed to the residual stresses created by an adjacent repair weld made in 1996. Please provide a comprehensive discussion and demonstrate through calculations and analyses how the residual stresses would cause a pre-existing crack to propagate throughwall in a fatigue mode.
7. In determining the operability of the subject system, an evaluation of the structural integrity of the pipe weld joints must be performed assuming the presence of a pre-existing crack, and conservatively calculating the crack growth due to vibratory stresses, welding residual stresses, and other operating stresses. Provide a summary of your evaluation.

Enclosure

8. Provide justification for using the axial and torsional stiffness values at the coupling location in the analytical model. Assuming zero stiffness at the coupling for thrust due to pressure appears to be unrealistic. Provide the rationale for this assumption.
9. At the design pressure, the reduced tubing wall thickness of 0.1 inch does not meet allowable stress values of the ASME Code Equation 11 (stress due to sustained loads). Justify how the structural integrity of the tubing with this wall thickness value is maintained.