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Docket No.: 50-352/353

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LB#2 File
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Dear Mr. Bauer:

Subject: Request for Additional Information - Limerick
(Fracture Toughness of Reactor Vessel and RCPB Materials)

The staff is reviewing the fracture toughness of ferritic reactor vessel and reactor coolant pressure boundary materials, and the materials surveillance program for the reactor vessel beltlines. The acceptance criteria and references which are the basis for this evaluation are set forth in paragraph II.3.a of Standard Review Plan (SRP) Section 5.2.3 and paragraphs II.5, II.6 and II.7 (Appendices G and H, 10 CFR Part 50) of SRP Section 5.3.1 in NUREG-0800 Rev. 1 dated July 1981. In order for us to continue our review we request that you provide the additional information identified in the enclosure.

Please provide us, within 10 working days from receipt of this letter, with the date(s) on which you plan to respond to the above. Any questions concerning this information request should be directed to Robert Martin (301) 492-8932, the Licensing Project Manager.

Original signed by:

A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing

Enclosure:
As stated

cc: See next page

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DATE	3/8/83	3/8/83				

Limerick

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Request for Additional Information

252.0 Materials Engineering Branch - Materials Application Section

252.1 For each reactor vessel beltline weld:

- a. indicate the post weld heat treatment received by each production weld and its associated sample test weld,
- b. indicate the filler material, flux material, and weld process,
- c. indicate whether the sample test welds were prepared using excess base material from the beltline,
- d. provide CVN impact test results and drop weight test results,
- e. report the copper, nickel and phosphorus chemical composition.

252.2 For each reactor vessel beltline plate or forging:

- a. provide CVN impact test results and drop weight test results,
- b. report the copper, nickel and phosphorus chemical composition, material specification and plate identification.

252.3 For each beltline plate or weld that has not been tested to the CVN impact test and drop weight test requirements of Section III, Summer 1972 Addenda of the ASME Code and the upper shelf requirements of Paragraph IV.B of Appendix G, 10 CFR Part 50 submit CVN

impact test and drop weight test results from alternative test materials that demonstrates the beltline materials comply with these requirements. The alternative weld material must be fabricated using the same flux type, filler wire type, weld process as the production sample, must be welded by the same manufacturer as the production sample, and heat treated to a equivalent metallurgical condition as the production weld. The alternative plate material must be fabricated by the same manufacturer as the production plate and must be fabricated to the same material specification and heat treated to the same metallurgical condition as the production plate.

252.4 For all ferritic RCPB valve materials and piping materials that were not fracture toughness tested to the requirements of the Summer 1972 Addenda and Winter 1972 Addenda of ASME Code, respectively, provide CVN impact and drop weight test data from alternative test materials that demonstrates the valve and piping material would have met ASME Code requirements, had they been tested. The alternative material must be fabricated by the same manufacturer as the production materials and must be fabricated to the same material specification and heat treated to the same metallurgical condition as the production plate.

252.5 To justify an exemption to the requirements of Paragraph IV.A.2.b of Appendix G, 10 CFR Part 50:

- a. indicate all flange and shell regions near geometric discontinuities that, during vessel operation, will not provide margins of safety in accordance with Appendix G, Section III of the ASME Code,
- b. for all locations in item a., estimate the critical crack size during normal operation which provides a margin of safety equivalent to Appendix G, Section III of the ASME Code. Indicate the method of analysis.
- c. indicate which non-destructive test methods can be performed during inservice inspection to examine for cracks of the size and location identified in item a. and b.

252.6 In order to us to complete our review of the applicant's reactor vessel surveillance program, report the copper, nickel and phosphorus chemical composition, the unirradiated CVN impact test results, the unirradiated drop weight test results, the plate material specification, filler wire type and flux type for all surveillance materials.

252.7 In order for us to complete our review of the applicant's pressure-temperature limits:

- a. estimate the end of life maximum neutron irradiation fluence ($E > 1$ MeV) at the 1/4 thickness and 3/4 thickness locations in the beltline region,

- b. indicate the inside diameter and wall thickness of the beltline region.