



UNITED STATES
NUCLEAR REGULATORY COMMISSION
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May 20, 1999

MEMORANDUM TO: S. Singh Bajwa, Chief
Project Section I-1
Division of Licensing Project Management

FROM: Edmund J. Sullivan, Chief
NDE and Metallurgy Section
Materials and Chemical Engineering Branch
Division of Engineering

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION TO SUPPLEMENT
LICENSEE RESPONSE TO INFORMATION PROVIDED FOR
GENERIC LETTER 97-05 (TAC NO.: MA0468)

The Materials and Chemical Engineering Branch (EMCB) is currently reviewing information regarding steam generator tube inspection practices submitted in response to Generic Letter 97-05, "Steam Generator Tube Inspection Techniques," to ensure that each licensee is inspecting in compliance with the current licensing basis for their plant(s). By letter dated October 28, 1998, Consolidated Edison Company, the licensee for Indian Point Nuclear Generating Station, Unit 2 (IP-2), submitted information in response to a request for additional information from the NRC included in a letter dated September 25, 1998. The technical staff has reviewed the licensee's response and concluded that it did not provide the information necessary for the staff to determine whether the steam generator tube inspection practices used at IP-2 are consistent with the current licensing basis. Specifically, the licensee appears to have concluded that signals observed during eddy current inspections are the result of tube pitting based on an assumption regarding the capabilities of inspection probes rather than the results of a qualification program completed in accordance with the requirements of Appendix B to 10 CFR Part 50 or some other technical assessment.

The licensee indicated in its response dated October 28, 1998, that its basis for concluding that indications in the IP-2 steam generators are the result of pitting stems from its assumption that "the +Point probe can distinguish between pitting and volumetric indications." The staff notes that pitting is one form of volumetric degradation. In addition, the NRC is unaware of any successful industry or plant-specific qualification of the plus point probe to accurately distinguish between pits and other volumetric degradation modes. In fact, at least one utility has attempted to qualify this probe for this task in the past, but this efforts was unsuccessful. Therefore, the licensee's statement on the abilities of the plus point probe appears to be inconsistent with conclusions reached in at least one test program carried out by another utility.

When inspecting with a plus point probe, the signal observed in a c-scan appears to be an indication with a three-dimensional response (i.e., length, width, voltage amplitude). In some circumstances, volumetric indications create a return to null signal when the coil is centered over the degraded area. This is evident as a dip in the signal voltage response. This phenomenon can also be observed in the response of some calibration standard reflectors

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(e.g., flat-bottomed holes). This characteristic is not unique to pitting or calibration standard reflectors. Inspections of intergranular attack (IGA) degradation may also cause the signal to return to null that some consider as a characteristic unique to pitting degradation. Therefore, the staff is unclear as to the technical bases used by the licensee to conclude that the indications at IF-2 are the result of tube pits in the absence of quantitative criteria applied to the eddy current signal response to distinguish between intergranular attack and pitting or a discussion of pulled tube destructive examination results and inspection experience from other plants.

In light of these observations, EMCBC requests that the Division of Licensing and Project Management request additional information from the licensee regarding its qualification of the plus point probe to distinguish between pit and pit-like steam generator tube indications. Alternatively, the licensee could submit a description of its technical basis for characterizing the volumetric indications observed in the IP-2 steam generators as pits rather than some other mode of volumetric degradation.

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