

August 2, 2000

MEMORANDUM TO: James T. Wiggins
Chair, DPO Ad Hoc Panel
Office of Executive Director

FROM: Joram Hopenfeld
Engineering Research Applications Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: DPO SCOPE

The purpose of this memo is to correct the impression that one may get from the information in your July 20 memo to me. More importantly your memo demonstrates some apparent fundamental deficiencies in the agency's DPO process. Your position that you would limit the scope of the DPO arbitrarily and without consulting with me or at least seeking clarification, is incomprehensible.

Your memo leaves the impression that your decision to exclude resonant vibration from the DPO scope was based on your perception that MSLB loads do not include loads resulting from resonance vibrations. The loads resulting from resonant vibrations are important and vibration loads are included in the definition of MSLB loads. Given the possibility that you misunderstood that MSLB loads also include stress from vibration, my March 1992 DPV document, page 16 specifically identifies vibration as a potential cause of steam generator tube damage: "Experimental data, Reference 11, demonstrate that under cyclic loadings, even small fluctuations in the applied stress rapidly increase the coalescence of cracks... Support plates and regions near the tubesheet are subjects to local stress fluctuations due to flow induced vibrations". It is obvious that the DPO has always been concerned about vibrations because they exist during normal operation, during SG depressurization and during the subsequent boiling off period where the churned flow is highly unstable.

Flow induces vibrations and the natural frequencies of the tubes cover a wide spectrum of frequencies under many conditions. Resonant frequency represents only one specific case where the flow induced frequency coincides with the natural frequency of the tube. The term vibration covers the entire spectrum of frequencies and it is ludicrous to single out one vibration

frequency and state that its is outside the scope of vibration and therefore also outside the scope of the DPO.

I have not seen an engineering text book that considers "resonant vibration" as anything other than a special case of vibration. In addition to excluding vibration, you also excluded the issue of tube damage caused by axial loads, which further indicates that your methodology was so limited as to preclude a meaningful analysis of the DPO.

By not adhering to MD 10.159, NRC management has drastically reduced the scope of my DPO and has exposed the public to much greater risk than purported while at the same time wasting resources on attempting to explain it away. Your attempt to ignore the content of a DPO under the guise of " my judgement" further illustrates how easily it is for NRC management to bypass its own regulations when they appear to conflict with the financial interests of the industry.

cc: EDO
J. Bodensteiner
R. Fields
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