

## **Rulemaking1CEm Resource**

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**Sent:** Wednesday, November 25, 2015 9:17 AM  
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Linear No-Threshold Model and Standards for Protection Against Radiation

**Comment On:** NRC-2015-0057-0086

Linear No-Threshold Model and Standards for Protection Against Radiation; Extension of Comment Period

**Document:** NRC-2015-0057-DRAFT-0606

Comment on FR Doc # 2015-20722

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## Submitter Information

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## General Comment

I work at the hot cell facility of Westinghouse Electric Company as a materials engineer at Churchill, PA. I am responding to PRM-20-28, PRM-20-29, and PRM-20-30 on my own behalf and my views do not necessarily reflect the position of Westinghouse. Since I work with activated and contaminated materials performing testing, research and failure exams for the nuclear power industry, I have taken an interest in the hormesis vs. LNT debate. From all my reading, I find the hormesis case compelling for low dose ionizing radiation. It is consistent with the biological response for other low level stressors on the human body. However, this is not my expertise. I will be responding to the impact that the LNT theory and the LNT based regulations (principally ALARA) has on my work with activated and contaminated materials.

Westinghouse, as a nuclear service provider, has effectively instilled a safety conscious work environment. Based on our company's focus on safety and ALARA, the administrative personnel dose limits at our facility are a small fraction of the required NRC limits. This is done with the perceived notion that lower personnel dose is equivalent to greater safety. In addition, the implementation of ALARA principals keeps the personnel exposures much lower than even the low administrative limits.

Because of the perceived increase in safety with keeping personnel doses very low, excessive costs are added to many aspects of the business of nuclear power, science and technology with the application of ALARA and the LNT model. Specifically relevant to materials research, ALARA principals add significant additional costs and schedule delays to work related to the testing and examination of activated and contaminated

materials extracted from nuclear facilities. The cost of irradiated materials research has steadily increased and correspondingly, the amount of actual irradiated material research has decreased. If ALARA principals could be eliminated (i.e., relying only on defensible set limits or a relaxed ALARA model) and more cost effective radiological protection standards applied, additional critical irradiated materials research could be conducted thus increasing the understanding of the degradation of materials in nuclear systems.

If ALARA is unnecessary, as the petitioners claim, then Westinghouse and other nuclear related providers pass on unnecessary costs to our customers in complying with the current radiation protection regulations. Therefore the regulations should be changed. These added costs come with no added health benefit but do increase risk as described below.

a. Due to the high cost of testing and examining activated and contaminated materials from nuclear facilities, the amount of materials research that occurs is reduced due to limited budgets. This leads to a reduction in the understanding of the degradation of materials in operating power reactors. This decrease in understanding could contribute to the increased potential of component failure. Every project is different, but for one recent project, it was estimated that the increased cost was approximately 30-50% to comply with ALARA.

b. ALARA and reduction radiation exposure to personnel are often used as part of the basis for justifying exemptions requesting delayed component inspections at nuclear facilities. These delayed inspections must have a sound technical basis other than reduction of radiation exposure, but if the LNT model is not accurate, then radiation exposure should not be used as part of the basis unless it is high enough to exceed the proposed limits.

If LNT is not correct and either hormesis or a threshold model is a better representation of the effect of radiation on human health as the petitioners claim, then application of ALARA is actually non-conservative. Please include consideration of the increased costs and potential reduction in safety as you reevaluate the current LNT based regulations.

Sincerely,

J. Brian Hall