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Linear No-Threshold Model and Standards for Protection Against Radiation

Comment On: NRC-2015-0057-0010

Linear No-Threshold Model and Standards for Protection Against Radiation; Notice of Docketing and Request for Comment

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Submitter Information

Name: Anonymous Anonymous

General Comment

Subject - NRC-2015-0057

Nuclear experts need to be reminded of the Petkau Effect. There are common misconceptions about the radiation hormesis theory even among experts in the nuclear industry. The Petkau Effect, published in the Journal of Health Physics in 1972, stated that a low dose of ionizing radiation given over a long time period caused more biological damage than a large dose given over a short time period. This directly invalidates any claim that low doses of ionizing radiation are beneficial or that radiation hormesis exists. It is in direct opposition to the requested change to remove the linear-no-threshold dose model that the BEIR VII report adopted in 2006. BEIR VII states that there is no safe level of radiation exposure.

There is also the bystander effect that may inhibit or stimulate tissues under identical low dose rates. This is also contrary to the radiation hormesis model and the threshold model for radiation protection.

Prior to 1952, in the United States, all cause mortality precipitously declined. After 1952, mortality rates suddenly escalated despite advances in medicine, especially in the 20 to 40 age group. The largest single contributor was determined to be radioactive fallout.

And, Sgouros, et. al, documented that at low doses, less than 2 rad per hour, tissues were weakened five times more than at 100 rad per hour. Again, another study opposing the radiation hormesis theory and that challenges the requested changes in the regulations by Miller, Doss, and Marcus.

As a parent and a radiation specialist, I completely oppose the requested changes to the current

radiation protection standards.