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Subject: FW: Comments on Docket ID NRC-2015-0057
Attachments: UMUT Comments 11 19 15.pdf

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TITLE: Linear No-Threshold Model and Standards for Protection Against Radiation

COMMENT#: 545

From: Celene Hawkins [mailto:chawkins@utemountain.org]
Sent: Thursday, November 19, 2015 4:39 PM
To: RulemakingComments Resource <RulemakingComments.Resource@nrc.gov>
Cc: Tomoe Natori <tnatori@utemountain.org>; H. Michael Keller (mkeller@fabianvancott.com) <mkeller@fabianvancott.com>; Scott Clow <sclow@utemountain.org>
Subject: [External_Sender] Comments on Docket ID NRC-2015-0057

Dear NRC Secretary Cook,

Attached are the Ute Mountain Ute Tribe's comments on Docket ID NRC3015-0057.

Celene Hawkins
Associate General Counsel
Ute Mountain Ute Tribe

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Ute Mountain Ute Tribe
Office of the Chairman

Mr. Manuel Heart
P.O. Box JJ
Towaoc, CO 81334

November 19, 2015

Annette L. Vietti-Cook
Secretary, Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Rulemaking.Comments@nrc.gov

VIA EMAIL AND/OR SUBMISSION VIA FEDERAL RULEMAKING WEBSITE

Re: Comments on Docket ID No. NRC-2015-0057, Proposed Change of the Linear No-Threshold Model and Standards for Protection Against Radiation (10 CFR 20)

Dear Secretary Cook:

The Ute Mountain Ute Tribe ("Tribe") submits the following public comments to the Nuclear Regulatory Commission ("NRC") regarding the Petition for Rulemaking for the Linear No-Threshold Model and Standards for Protection Against Radiation, 80 Fed. Reg. 35870 (June 23, 2015) ("Petition"). The Tribe submits these comments on behalf of the health and welfare of Ute Mountain Ute Tribal members ("UMU Tribal Members") and the environment, which supports wildlife, wild food, medicines and cattle operations on which the Tribal members traditionally and historically subsist.

I. TRIBAL BACKGROUND AND INTEREST IN THIS DOCKET

The Tribe is a federally-recognized Indian tribe with lands located in southwestern Colorado, northwestern New Mexico, and southeastern Utah. There are two Tribal communities on the Ute Mountain Ute Reservation: Towaoc, in southwestern Colorado, and White Mesa, in southeastern Utah. UMU Tribal Members have lived on and around White Mesa for centuries and intend to do so forever. The community of White Mesa depends on groundwater resources buried deep in the Navajo aquifer for its municipal (domestic) needs. UMU Tribal Members continue traditional practices, which include hunting and gathering and using the land, plants, wildlife, and water in ways that are integral to their culture.

The White Mesa Tribal community is located approximately three miles south of the White Mesa Mill, the only operational conventional uranium mill in the United States. The White Mesa Mill is located on Ute aboriginal lands, and its upgradient location from the Tribal community means that contamination from White Mesa Mill facility operations generally flows through ground and surface water towards the Tribal community. The Tribe is currently concerned that contamination of surface resources, surface water resources, and

groundwater by the White Mesa Mill could make aboriginal and Tribal lands uninhabitable for future generations of Tribal members.

For the purposes of this Petition, the Tribe is concerned that the proposal to change from the Linear No-Threshold (LNT) model (which provides radiation is harmful to the human body at any level), to the radiation hormesis (Hormesis) model (which provides exposure of the human body to low levels of ionizing radiation is beneficial and protects the body from the harmful effects of high levels of radiation)¹ will result in harm to the health of Tribal members and the resources upon which the UMU Tribal members rely. If, as the three petitioners (“Petitioners”) propose, the “as low as reasonably achievable” (“ALARA”) principles are removed from the regulation of the White Mesa Mill, that may significantly change how that facility is licensed and regulated by the State of Utah (an Agreement State) and may significantly reduce the existing protections for UMU Tribal members and Tribal resources. Accordingly, the Tribe submits these comments asserting that the LNT model provides the best protection against radiation exposure and that there is a need for additional information regarding the Hormesis model before the Petitioners can show the NRC why the model should replace the LNT model as the standard for protection against radiation exposure.

II. THE LNT MODEL PROVIDES THE BEST PROTECTION AGAINST RADIATION EXPOSURE

The longstanding use of the LNT Model and ALARA are based on the recognition that certain radiation effects are irreversible and cumulative and that any exposure to radiation carries risk. NRC’s entire regulatory program is based on the principle that exposure to all types of radiation should be reduced to the lowest reasonable level to avoid the risk of irreversible and cumulative radiation effects.

The Petitioners make their case for the Hormesis model by attacking the shortcomings of the LNT model, indicating that vast amounts of literature show there are no “protective effects at relatively low doses of radiation.”² Ideally, the Petitioners want the NRC to eliminate from its consideration actual dosage limits or the ALARA principle regarding radiation dosage limits.³

The Tribe disagrees with the Petitioners’ current request that the Hormesis model replace the longstanding LNT model. A number of individuals and entities authoritative on the subject of radiation exposure support continued use of the LNT model. For example, the National Research Council’s Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation finds that “current scientific evidence is consistent with the hypothesis that there is a linear, no-threshold dose-response relationship between exposure to ionizing radiation and the development of cancer in human,”⁴ meaning there is no radiation dosage level safe enough to guarantee that cancer will not form in the human body. Further, the results of large-scale studies conducted as recently as 2012 and 2013, which examined medical patients’ exposure to radiation

¹Petition at 35871.

²*Id.*

³*Id.*

⁴“Health Risks from Exposure to Low Levels of Ionizing Radiation: BEIR VII - Phase 2,” Committee to Assess Health Risks from Exposure to Low Levels of Ionizing Radiation, National Research Council (2006).

through CT head scans and the existence of cancer, were generally consistent with the LNT model.⁵

Until such time that the LNT model is shown definitively to be an ineffective model, the Tribe recommends that it continue to serve as the NRC's standard for protection against radiation exposure.

III. THE NRC NEEDS ADDITIONAL INFORMATION THAT SUPPORTS HORMESIS MODEL

Any imperfections in the LNT Model are not enough to justify replacing the LNT model, the current NRC standard for protection against radiation exposure, with the Hormesis model for which very fewer supportive studies exist than those studies supportive of the LNT model. The Petitioner must do more than try to identify imperfections in the LNT model. They would need to show conclusively that the Hormesis model creates less risk of irreversible and cumulative radiation effects to all affected populations than the LNT model and any other models currently available.

The Tribe finds it egregious that the Petitioners are asking the NRC to accept as safe public radiation dose levels equal to dosage levels considered safe for workers and to cease accounting for differential radiation doses for pregnant women, embryos, and fetuses, and children under 18 years of age,⁶ absent a clear understanding about the health and environmental effects of each request. Further, the Tribe is very concerned that the Petitioners fail to account for numerous scientific studies that show radiation exposure is cumulative over a person's lifetime and can have deterministic and stochastic effects on the person's body to his or her detriment.⁷ Use of the Hormesis model would accelerate a person's cumulative exposure to radiation over his or her lifetime, compared to what would occur using the LNT model, and make him or her more susceptible to various cancers and other deleterious effects.

Finally, the Tribe is concerned that the Petition does not address the health effects that the proposed change would have on subsistence cultures, practiced by UMU Tribal members living in White Mesa, Utah. Bioaccumulation of radionuclides by the first organism and subsequent biomagnification of them through food chain have been well-documented to demonstrate the mechanism of accumulated high dose in the body of organisms at the highest in the trophic level.⁸ Thus, UMU Tribal members who subsist on wild food, game, medicines and cattle that grazes on their historical pastures may be one of the most exposed groups impacted by the Petitioners' proposed change.

⁵De Gonzalez, Pearce et al., "Radiation exposure from CT scans in childhood and subsequent risk of leukemia and brain tumors: a retrospective cohort study." *The Lancet* (August 4, 2012), 380 (9840): 499-505; Darby, Matthews et al., "Cancer risk in 680,000 people exposed to computed tomography scans in childhood or adolescence: data linkage study of 11 million Australians," *BMJ: British Medical Journal* (May 21, 2013).

⁶Petition at 35871.

⁷"Cumulative Radiation Exposure and Your Patient," Intermountain Healthcare, Cardiovascular Clinical Program and Imaging Clinical Service (January 2013).

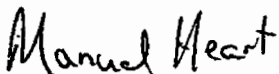
⁸Yablokov, Alexey V. and Ostroumov, Sergey A. 1991. Conservation of Living Nature and Resources: Problems, Trends and Prospects. Pp. 107-108.

IV. NRC SHOULD CONSULT WITH TRIBES ON A GOVERNMENT-TO-GOVERNMENT BASIS ABOUT THIS PETITION

NRC should consult with tribes on a government-to-government basis about these Petitions.⁹ The Tribe specifically asserts that, because the Petition contemplates a model change and the potential removal of ALARA standards that will have a substantial direct effect on the Tribe (the Ute Mountain Ute Tribe) and UMU Tribal members, the NRC should consult with the Tribe and other tribes on a government-to-government basis.

If you have any questions about these comments or to schedule government-to-government consultation meetings on this docket, please contact Tomoe Natori, Tribal Environmental Programs Department, at (970) 564-5431, tnatori@utemountain.org, or Mike Keller, Special Counsel, at (801) 574-2622, mkeller@fabianvancott.com.

Respectfully Submitted,



Manuel Heart
Chairman
Ute Mountain Ute Tribe

⁹See, e.g., NRC Tribal Protocol Manual Sections 1.B, 2.B.