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On Thursday morning I received a call from a member of the Technical review Board Stated " we have decline to recommended to YMP that they should investigated the issue of complex mixtures on the ground that our literature research found abstracts indicated a **protective mechanism** and have an additive effects found in the literature" Furthermore, I was told it is EPA responsibility to set up standards for YMP and they should funded such research. I am amaze by the technical Review Board response, which member have failed to call for additional research by:

Recently, there has been an increasing concern among regulatory agencies and the public over the exposure to and possible adverse effects from exposure to complex mixtures of environmental pollutants. The EPA (1) recognized the importance of complex mixtures and issued guidelines for the risk assessment of complex mixtures. The National Research Council (NRC) in 1988 (2) addressed concerns regarding exposures to complex mixtures. The Presidential/Congressional Commission on Risk Assessment and Risk Management in 1977 (3) stated that it "considered the risk assessment of mixtures to be a matter of considerable concern and importance." Additionally, the National Council on Radiation Protection and Measurements (NCRP), in 1993 (4), specifically acknowledged that a gap exists between chemical and radiation risk estimate. In addition, the NCRP confirmed that further study is needed to address issues such as damage to the immune system, and possible combined effects of chemicals and irradiation causing either synergistic or antagonistic effects.

Several models for the action of mixed irradiation with two types of radiation have been proposed in the last two decades, but YMP management failed to include them in the EIS. Mixed irradiation is sometimes composed of more than two types of radiation, and for this type of mixed irradiation, no model has yet been proposed for YMP. It is of importance to assess the effect of mixed irradiation in terms of the environment,

groundwater contamination, transportation accidents, space, and medicine. Theoretical models for mixed irradiation with two types of radiation have been presented by Suzuki (5), and other ranchers have been developed and but, they have not been included as a part of the EIS risk assessment.

Examples of interactions between chemicals and irradiation are: of high and very low levels and Katsfis et al., (6) stated that the "Exposure of Ni and Cr to UV and X-ray increase **antagonistically** for induction of MN. Furthermore, metals affecting certain microsteps in the process of DNA replication or repair **antagonistic** effect. The authors stated that further studies are therefore recommended". Calbrese et al., (7) reported that "a comprehensive search of the literature, merely 3000 potential relevant articles noted hormosis phenomenon. Evidence of chemical and radiation hormosis occurs in about 1000 of these articles". Krishnan et al (8) reviewed the current approached taken by Canada to assess the risk associated with chemical mixtures of drinking water. Lee (9) he cited three references stated " the carcinogincity of nickel enhanced by the presence of other carcinogens such as benzpyrenes, arsenic, hexavalent chromium".

In conclusion, I question the scientific conclusion of the Technical Review Board on what scientific ground they have ignored the EPA, NSC, and NREP; and the call in the professional literatures for additional research interaction between chemicals and irradiation. The question who should investigated the issue of complex mixtures in my opinion the US Congress mandate DOE to investigate the suitability of YMP as high nuclear repository, they perform the risk assessment therefore it is their responsibility to support and conduct such research. Finally, YMP should investigate the risk associated with exposure to complex mixtures before the site could be approved.

References

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