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Response to Comments on Uranium Content Anomalies in Groundwaters of Fazilka District of Punjab (India) for the Assessment of Excess Cancer Risk

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1. Excess cancer risk from the ingestion of natural Uranium from the drinking water has been calculated according to the standard method given by the United States Environmental Protection Agency (USEPA) [1]. There is as yet no final conclusion regarding absorbed dose delivered to population over extended time periods. Most of the authors in India and abroad have used the Model calculations based on Linear No Threshold (LNT) for evaluating excess cancer risk.
   The USEPA claims as follows [2]: EPA's application of the LNT model to estimate and regulate cancer risks from environmental exposures to radionuclides is entirely consistent with all past and current observations and recommendations of the International Commission on Radiological Protection (ICRP), the National Council on Radiation Protection and Measurements (NCRP), the National Academy of Sciences Committee on the Biological Effects of Ionizing Radiation (BEIR), and the United Nations Scientific Committee on the Effect of Atomic Radiation (UNSCEAR), and the National Radiation Protection Board (NRBP). Citing the recommendations of these national and international advisory bodies, the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission, and other Federal and State agencies with regulatory authority over radioactive materials also apply the LNT model as the basis for setting regulations and guidelines for radiation protection.
2. In my view, report of Nair *et al.* [3] is inconclusive: Although high background radiation (HBR) has been repeatedly shown to increase the frequency of chromosome aberrations in the circulating lymphocytes of exposed persons, its carcinogenic effect is still unproven.
3. I am not sure any other Indian group has done epidemiological studies of cancer risk due to high levels of Uranium in groundwater in Fazilka district of Malwa belt of Punjab, India as suggested in my conclusions [1].
4. I do not fully agree with the last comment of the author listed in para 2 [4]. It is already well established that Malwa belt of Punjab is prone to cancer risk due to high levels of Uranium in groundwater; hence my report will not scare the public unnecessarily.

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