

Committee for Nuclear Responsibility, Inc.

To: Kane, NMS
Appropriate Action

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Richard Meserve, Chair
U.S. Nuclear Regulatory Commission
Attn: Rulemaking and Adjudications Staff
Washington DC 20555

Dec. 11, 1999

ADJUDICATIONS

Re: Release of radioactive materials into commerce, incinerators, landfills.

Submission of Comments. These comments apply to the release of radioactive metals AND to radioactive materials in general.

Text of comments:

Putting radioactive scrap metal and other radioactive materials into commerce and into the biosphere will cause additional human exposure. Additional exposure at any level will cause additional cases of fatal radiation-induced Cancer, inherited afflictions (Gofman 1998), and most probably Ischemic Heart Disease (Gofman 1999).

How many additional cases? That would depend on the AGGREGATE extra radiation dose delivered to people, including future generations. That dose is impossible to estimate in advance, and will never be measured in practice (UPN 1999).

Indeed, the current permits to "recycle" radioactive metals may be interpreted, by the owners of many types of radioactive materials, as a signal that they can be casual in handling them. This would be a giant step backwards --- a restoration of the attitude of the 1950s, when the evidence was NOT yet clear that low-LET ionizing radiation is a uniquely potent mutagen.

The Free-Radical Fallacy and the Threshold Fallacy

It is now agreed that even a SINGLE high-speed beta particle or SINGLE electron from a SINGLE xray or gamma photon, is capable of causing complex, double-strand DNA damage of the sort whose repair is "error-prone" or completely absent (Gofman 1990, Chap. 19, p.8; UNSCEAR 1993, p.632/63+64; NRPB 1995, p.59/32).

That is why it is a grand mistake to propose an equivalence between the DNA damage from low-LET radiation with the DNA damage from routine exposure to endogenous metabolic free-radicals (e.g., Billen 1990). Endogenous free radicals inflict single-strand damage which is routinely repaired, as pointed out elsewhere (e.g., Ward 1991; Baverstock 1991; NRPB 1995, pp.59-60). By contrast with the energy-exchanges in a cell's natural biochemistry, low-LET radiation can deliver biologically UNNATURAL amounts of energy --- e.g., 60 ev per deposit --- within a very small locus and even within the DNA double-helix itself. These unnaturally large energy-deposits, from low-LET radiation, are like small bombs or grenades which can inflict mayhem on chromosomal DNA.

The fallacy, of regarding DNA exposure to metabolic free radicals as equivalent to DNA exposure to low-LET ionizing, has been demonstrated elsewhere (Gofman 1999, pp.530-532). The claimed equivalence leads to the absurd conclusion that daily exposure to 100 rads of whole-body irradiation "must" be harmless --- when in fact, it is promptly lethal (Gofman 1999, p.531).

The only way, that release of radioactive materials into commerce and into the biosphere would NOT kill any people, is for a safe threshold-dose of radiation to exist below which all radiation-induced genetic injuries are flawlessly repaired. That is the safe-dose FALLACY. Not only is evidence FOR perfect repair lacking (UNSCEAR 1993, p.634/74), but evidence AGAINST perfect repair is powerful (Gofman 1990, Chapters 18-21; NRPB 1995, p.61/38 + p.75/21).

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The absence of any threshold-dose for carcinogenesis has been proven "by any reasonable standard of biomedical proof." And even if its absence had NOT been proven, human rights forbid one set of persons to force another set to accept exposure to an agent of unknown toxicity. That would be tyranny, for sure.

Is It OK to Give Another Person Cancer?

Thus, every permit to allow "permissible" levels of nuclear pollution (which includes the entry of radscrap into commerce) is a permit to commit premeditated random murder. Why would anyone ask for such a permit? Because it saves money for owners of radioactive materials. So it's a "Kill for the Company" permit. There is nothing more depraved than thinking it's OK to give another person Cancer. To give anyone Cancer is despicable.

Is that statement even arguable?

It just won't fly, ethically, to claim that the number of cases will be "negligible" in comparison with the number which occurs "anyway." That argument would even justify spousal murder, high-school shootings, and involuntary euthanasia. Moreover, the NRC can not know in advance how much extra exposure and how many extra deaths its permits will ultimately cause.

Bureaucrats Who Deny Their Better Natures

Nations with an ethical compass would find it UNTHINKABLE deliberately to impose upon humanity ANY extra exposure to a persistent, proven, and uniquely potent mutagen (ionizing radiation) --- certainly not when science is revealing the mutation-based nature of so many more afflictions than were imagined in the 1950s, and not when the power of low-LET radiation to induce genomic instability has been well established (references in Gofman 1999, Appendix D). Genomic instability is commonly a feature of the most vicious Cancers.

The reason such proposals are occurring here and abroad is the pitiful cowardice of the bureaucrats who support the "Law of Concentrated Benefit," which is:

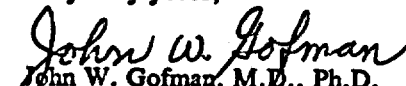
"A small determined group (in this case, owners of radioactive materials), working energetically for its own narrow interests, can almost always impose an injustice upon a vastly larger group, provided that the larger group believes that (a) the injury is 'hypothetical,' or (b) distant-in-the-future, or (c) real-but-small relative to the effort required to prevent it."

(a) The injury (extra cases of Cancer), proposed by NRC bureaucrats on behalf of the owners of radioactive materials, is not hypothetical when "the weight of the evidence, in respect of the induction of the majority of common human tumours, falls decisively in favor of the thesis that, at low doses and low dose-rates, tumorigenic risk rises as a simple function of dose without a low dose interval within which risk may be discounted" (NRPB 1995, p.68/80).

(b) Neither is the injury distant-in-the-future, because unrepaired or misrepaired genetic injury becomes permanent in a person within just a few hours after the exposure which causes the damage.

(c) And how much effort must be spent to stop the injustice proposed by the NRC --- and to make the NRC honor the basic human right of each person not to be secretly irradiated to death by radioactive products and pollutants? Not necessarily a lot. The rights would be rapidly honored by the NRC if NRC bureaucrats would simply decide, in this job-rich economy, "I won't be an accomplice to giving Cancer or other afflictions to ANYONE, and if I'm forced to choose, I'd rather be fired than Kill for the Company."

Very truly yours,


John W. Gofman, M.D., Ph.D.
Chairman of CNR.

Professor Emeritus in Molecular and
Cell Biology, University of California, Berkeley.

First Director of the Biomedical Research
Division, Livermore National Laboratory,
1963-1965

REFERENCES:

NOTE: In the text, above, when a page number is followed by a slash, the next number denotes a numbered paragraph on that page.

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