# Nuclear Information and Resource Service

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**Comments by Diane D'Arrigo on**
**NUREG 1727 Volume 2**
**Draft Report for Comment**
**Consolidated NMSS Decommissioning Guidance:**
**Characterization, Survey and Determination of Radiological Criteria**

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**To: Chief, Rules Review and Directives Branch**
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There is a very basic problem that makes all of the elaborate technical and logical evaluations in NRC's decommissioning guidance unreliable. It has to do with the calculation and projection of risk and dose.

The NRC is relying on outdated information about what doses and risks various levels of radiation pose.

The International Commission on Radiological Protection reports, upon which NRC relies, are erroneously being used to attribute various amounts dose and risk to given levels of radioactivity.

So the first problem is with the assumptions of dose and risk from given levels of radiation. The dose calculations are to "standard man," not to women, youth, elderly or other (nonstandard) men. Not to the fetus. Not to vulnerable members of the population. Not to people who have received radiation treatments or diagnostic exposures. (Although the latest ICRP document attempts to make calculations for some female organs, it does not fully account for the impact of radiation on women.) Each person gets a different dose based on enormous complex factors. To assume an equation can adequately project such information is not credible in the practical world around us. NRC should be protecting the most vulnerable in our population, not the least vulnerable (standard man).

In addition, synergistic effects of exposures to more than one radioisotope at a time are not considered. Synergistic effects of exposures to radionuclides and other pollutants are not considered. Recent scientific discoveries such as the "bystander effect" are not considered. This is the phenomenon in which cells near the one "hit" by the ionizing radiation but not hit themselves exhibit effects from the radiation. This is also seen in future generations from cells that were not themselves directly hit, but in the vicinity of hit cells.

The models do not take into account the impact of low doses of radiation in a small impacted area. Rather they assume dilution of the dose over whole organs or the whole body even when this is not the physical reality.

The fact that radiation doses cannot be measured, verified or enforced renders regulation by such methods meaningless in practical terms. This is unacceptable when decommissioning is a very practical, hands-on activity that will result in irrevocable loss of control of radioactive materials and sites.

Humans are dependent on their environments, so should better protected than they are by utilization of unverified and unsubstantiated theoretical computer models.

Impact on the ecosystem other than its impact on "standard man" is not considered at all and should be. Contaminating the environment affects the health of species other than humans. It is time for the NRC to require protection of species other than standard man and humans.

The work of the European Committee on Radiation Risk (ECRR), specifically the 2003 Recommendations of the ECRR "The Health Effects of Ionizing Radiation Exposure at Low Doses for Radiation Protection Purposes, Regulators Edition," should be included in, and to the extent possible, replace the existing reliance on and assumptions by the International Commission on Radiological Protection (ICRP).

The "risk informing" regulatory approach can be more accurately termed "risk misinforming." NRC and the licensee are making the decision about which issues are important without due consideration to the public input from the very individuals and communities that have borne and will bear the risks.

"Risk-misinforming"
1) narrows the potential challenges;

2) de-prioritizes potential challenges;

3) narrows consideration of resources;

4) misidentifies uncertainty;

5) leads to expedited decision-making to financially benefit the licensee. In other words, NRC facilitates the schedule of the licensee over public health concerns. ;

6) is based on false assumptions; and

7) reduces safety.

The history of "risk informing" regulation for reactor operations has resulted in unacceptable reductions of safety for the public. Applying it to decommissioning perpetuates that unacceptable situation and will result in permanent irreversible threats to public health and safety.

There is inadequate justification for the sampling and assuming given dispersions of radioactive material within the buildings and soils and decommissioning rubble at the massive reactors that are being dismantled. We question the permission to ignore all radionuclides that are projected by the licensee to provide 10% or less of the dose.

Even if the dose limits in 10 CFR 20 subpart E were enforceable, they are too high. For unrestricted release sires, it is unclear whether entire sites will permitted to give a 25 millirem per dose to members of the public or whether each shipment of material from a decommissioned site to an unlicensed facility may give that dose.

NRC is failing in its mission to protect the public health and safety by permitting contaminated sites and radioactive materials to be released from regulatory control.

NIRS opposes NRC continuing efforts to circumvent and supercede EPA's authority to protect drinking water at a more stringent level.