

PRECAUTION IS PREVENTION: Applying precaution to ionizing radiation exposure

Radiation use *needs* Precaution

Science and human experience have shown that high doses of radiation are damaging, even deadly to human health. There is substantial scientific evidence that lower doses lead to cancer, heart disease and other ailments. Many experts, including the most recent National Academy of Sciences radiation committee, reconfirm there is no scientific evidence for a safe dose of radiation. Children are especially vulnerable because they are smaller and their cells are dividing more rapidly. Despite this, regulators do not require protective measures commensurate with potential dangers, including permanent damage and contamination of the human gene pool. For these reasons, *precaution* should be the default regulatory position, with the burden to prove safety clearly on industry.

In *Late Lessons from Early Warnings: the precautionary principle 1896-2000* (European Environment Agency) the authors examine precautionary action for radiation exposure and conclude that radiation regulatory and recommendation bodies have always been slow to react to “mounting incontrovertible evidence... where precaution has sometimes been lacking despite the clear warnings given...”

Scientific methods have shortcomings which often obscure health effects. These weaknesses include insensitivity to smaller groups, incorrect or error-ridden assumptions used to analyze data, and potential conflicts of interest on the part of the researchers. Applying precaution gives weight to evidence which science is unable to account for but which is often valid. This evidence can be the first indication that a community is suffering from exposure and needs protection and aid.

Precaution is Already in Law and Policy

The Precautionary Principle is written into the Treaty on European Union, also known as the Maastricht Treaty, 1992. All European Union members abide by this. In the United States, the San Francisco board of Supervisors adopted the Precautionary Principle as city and county policy recognizing that:

“Historically, environmentally harmful activities have only been stopped after they have manifested extreme environmental degradation or exposed people to harm...The delay between the first knowledge of harm and appropriate action to deal with it can be measured in human lives cut short...”

The United States is bound by a broad precautionary statement in the Rio Climate Treaty which was created at the Rio Earth Summit in 1992:

Rio Declaration on Environment and Development, UNEP, 1992, Principle 15:
In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

According to the US constitution, treaty language agreed to by the United States is binding. If the US is failing to follow the *principle*, then it is breaking its own law.

Radiation Declaration

Whereas ionizing radiation exposure poses a threat of serious or irreversible damage to humans, animals and the environment, protective measures shall be taken to protect the most vulnerable from the most easily induced diseases. Lack of either full scientific certainty or mechanisms of damage shall not be used as a reason for postponing measures to minimize or avoid such damage.

Actions for Precaution: *Policies which will bring society closer to full protection from man-enhanced radiation exposure include efforts to:*

- a) Strive for a goal of zero release from all nuclear weapons and power facilities. Accidental and intentional release of radiation from nuclear facilities to our air and water, and release for use in children's toys and many other consumer products, is an unnecessary and unacceptable risk since no dose of radiation is safe.
- b) Protect the most vulnerable, such as women, children, the unborn, and elderly.
- c) Protect the environment and other species from radiation exposure.
- d) Require those who profit from exposing others to radiation to prove that it is safe rather than requiring those who are exposed to prove that they have been harmed.
- e) Start shifting and expanding research to focus on synergies between and among radiation and other toxins, stressors and everyday materials and the effect of these synergies on all organisms.
- f) Account for dose and resulting damage from intake of radionuclides by inhalation and ingestion.
- g) Require industry funding for independent, real-time monitoring of nuclear power effluent to air and water so the public can be informed in a timely, open manner of routine, planned and accidental releases.
- h) Institute more conservative assessments of radiation damage for use in protection against radionuclides.
- i) Replace the concept of ALARA (as low as reasonably achievable) with the goal of preventing exposure. Ensure that, while it exists, ALARA is no longer co-opted by economics and that the public has a role in deciding the definition of "reasonable".
- j) Ensure complete site clean-up before unrestricted release. After a nuclear facility closes, all soil (surface and below), ground water and other natural features shall be remediated to the background radiation levels which were present before the facility's construction and operation.
- k) Discourage proliferation of unnecessary nuclear technologies (thereby discouraging the spread of nuclear weapons, waste and radioactivity). Encourage best available technologies for all nations.
- l) Prevent generation of new radioactive materials from nuclear energy and weapons fuel chain facilities.

Alternatives

All nuclear reactors release radiation as a part of routine operation. These radiation releases compound the doses already received from unavoidable background radiation. On average (a decade ago), a 1000 MW nuclear reactor takes 7 to 10 years to build, costs an average of 4 billion dollars and cost ratepayers 11-14 cents per kW/hour. We can meet our energy needs and address climate change, now and for the future, with cheaper, safer, sustainable technologies such as wind, solar and energy efficiency. Solar energy is nearing 8-10cents per kW/hour and plants have a construction time on par with wind. In 2002, a 50 MW wind farm (enough to power approximately 12,000 to 15,000 homes) could be built in 18 months to two years; currently, wind doesn't exceed 6 cents per kW/hour. Every dollar spent on nuclear power instead of fossil fuels results in releasing six times more carbon than if the same dollar is spent on efficiency. Further, recent polls by Pew and Gallup show people preferred sustainable energy over nuclear power. The federal government needs to accept the public's will.

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