

**Public Comments
on the U.S. Environmental Protection Agency's
Draft Revisions to 40 CFR Part 197,
Public Health and Environmental Radiation Protection Standards
for Yucca Mountain, Nevada
(Docket Identification Number OAR-2005-0083)**

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NIRS/WISE is the information and networking center for citizens and environmental organizations concerned about nuclear power, radioactive waste, radiation, and sustainable energy issues. On behalf of our members across the United States and around the world, I submit the following comments regarding EPA's proposed revisions to its Yucca Mountain radiation release regulations.

EPA's proposed double standard must be withdrawn. The proposal would protect people for the first 10,000 years to currently applied standards of protection, but would then doom future generations after that time to a 1 in 36 cancer rate (or even worse, up to a 100% cancer rate, due to EPA mathematical manipulation), and a 1 in 72 fatal cancer rate (or even worse). Such proposed cancer rates and fatal cancer rates are horrifying, and EPA must withdraw such an unacceptable proposal. This is a complete violation of principles of inter-generational equity, as well as public health and environmental protection.

EPA's proposal to allow 350 millirem per year radiation doses to people living downstream from the leaking dump – the equivalent of 58 full chest x-rays per year – would not only cause cancer, but also birth defects, genetic damage, and other maladies,

and at alarming rates, and must be withdrawn. Current standards of 15 millirem per year from all pathways, and 4 millirem per year from drinking water, must be applied for the full regulatory period at Yucca Mountain, extending to the period of peak radiation doses (hundreds of thousands of years into the future) and beyond (to one million years, as identified by the National Academy of Sciences).

These proposed regulations allowing 350 millirem per year radiation doses are completely unacceptable and must not be allowed to set a precedent to be applied at other radioactively contaminated sites across the country because they represent a large-scale weakening of environmental and public health protection standards, the worst such standards, by far, in the Western world, in violation of international norms. This inter-generational immorality must also not be applied to other EPA jurisdictions, such as non-radioactive, toxic and hazardous chemical contaminated sites.

Disregarding all applicable, long-established laws, regulations, and inter-generational morality, the EPA has proposed – as Dr. Makhijani of the Institute for Energy and Environmental Research dubs it – a “double-standard standard.” EPA’s proposal would, for the first 10,000 years post-burial of the wastes, retain its original Yucca regulations permitting a lifetime cancer rate of 1 in 835 people exposed to Yucca’s leaking radioactivity (in other words, a 15 millirem per year permitted radiation dose). But after 10,000 years, **EPA now proposes allowing a 1 in 36 lifetime cancer rate** (this figure calculated using the recent findings presented in the National Academy of Sciences Biological Effects of Ionizing Radiation report – NAS BEIR VII) for persons downstream (a 23-fold increase in “allowable” radiation to 350 mrem/yr, equivalent to 58 chest x-rays per year!). About half of those cancers would be fatal. It should be noted that BEIR VII has re-affirmed that any radiation dose, no matter how small, carries with it the risk of health damage. EPA’s proposed rule change flies in the face of BEIR VII’s recent findings.

To make matters worse, EPA’s 350 mrem/yr figure is not a maximum permitted dose to the public, but rather a median dose, meaning that 50% of doses would be higher than 350 mrem/yr. Large numbers of people would, under this proposed rule, get doses far higher than 350 mrem/yr. EPA proposes changing from the mean dose (add all the individual doses and divide by the total number of doses to arrive at the average, or mean dose, thus including very high doses in the mean) after 10,000 years to a median dose (the middle dose value, with an equal number of dose values above and below it – meaning that very high doses are simply disregarded, no matter how high they are). According to Dr. Robert Gould, chair of the security committee of Physicians for Social Responsibility, “the sky’s the limit” as to how high doses could go, for incredibly there is no upper limit for the half of the exposures that would be above the median. These higher doses would carry proportionately higher health risks.

In DOE’s Yucca Total System Performance Assessment for Site Recommendation, at the time of peak dose (after the waste packages corrode and fail), the mean dose of the many computer simulations is about 600 mrem/yr, whereas the median dose is about 200 mrem/yr. Yucca would not meet a standard that required the

mean to be less than 350 mrem/yr, but would if the median were used. EPA's use of a 350 mrem/yr median dose limit is thus a transparent attempt to keep Yucca "licensable," despite its clearly unsuitable geology. A median of 350 mrem/yr results in doses of 2,000 mrem/yr (2 rem/yr) to the 5% of people most exposed; over a lifetime of such exposures, one in five women would contract cancer from Yucca's leaking wastes. This is nightmarishly unacceptable!

EPA's proposed 350 mrem/yr dose would not just occur for a brief time and then decrease to far lower levels. Under EPA's proposal, these large doses would be permitted to occur year after year, generation after generation, forevermore into the future (well, out to a million years, after which time regulations would end, although certain radionuclides would remain hazardous and deadly). Under EPA's proposal -- given the lack of a cap on maximum doses and the hundreds of thousands of years these leaking wastes would remain harmful -- significant numbers of the people most exposed to radiation doses could suffer a statistical 100% risk of contracting cancer. The State of Nevada has noted that EPA, on page 108 of the proposed rule, holds that exposures of the magnitude associated with unmined uranium ore bodies meet the standard of "minimal justice." EPA further states that estimates of the risks from unmined ore bodies range upward to 100,000 excess cancer deaths over 10,000 years. So it follows that EPA believes ten excess deaths per year are acceptable. For a 1,000,000 year assessment period called for by the proposed Yucca rule, this means that ten million excess deaths would be acceptable to EPA. Ten million excess cancer deaths, however, is again nightmarishly unacceptable.

EPA's proposal would set a very dangerous precedent that could be applied across the U.S., not just at Yucca Mountain. EPA has for decades declared any radiation dose above 15 to 25 mrem/yr to be "non-protective of public health." Its general policy has been to regulate exposures to limit cancer rates to 1 in 10,000 persons exposed, or even to 1 in 1 million persons exposed. For example, EPA limits radioactivity in drinking water to 4 mrem/yr, air emissions at 10 mrem/yr, and Superfund cleanups to the equivalent of roughly 0.03 to 3 mrem/yr. EPA has gone on record, again and again, that radiation doses of 100 mrem/yr produce unacceptable levels of risk. But EPA's 350 mrem/yr proposed standard for Yucca would be a 23-fold increase in "allowable" radiation over the 15 mrem/yr standard, and would more than triple the amount of radiation exposure EPA has repeatedly stated produces unacceptable levels of risk. If EPA gets away with this, it could set a precedent to rollback cleanup efforts at other radioactively contaminated sites across the country, including other radioactive waste dumps, nuclear power plant sites, and nuclear fuel chain facilities. There is the added danger that EPA could attempt to apply such inter-generational double standards to other polluted sites suffering non-radioactive, toxic and hazardous material contamination, allowing for much higher cancer rates (and other disease rates) to future generations. EPA is supposed to protect public health and safety and the environment, not undermine such protections to grease the skids for profit-seeking industry interests.

EPA's proposal is a shoehorn designed to weaken the standards so that the geologically unsuitable site can still be licensed, rather than requiring the site to meet

public health and environmental protection standards. If the Yucca Mountain site cannot meet public health and environmental protection standards, as it clearly cannot, then the dump should never be opened. DOE has publicly predicted doses of 200 to 300 mrem/year at 200,000 to 300,000 years after burial of the waste, so now EPA proposes weakening the standards just enough so that Yucca could still be licensed. EPA's proposal represents raw politics, is antithetical to science-based public health and environmental protection, and would doom residents near Yucca to cancer and death at horribly high rates. All this, just so the nuclear establishment can maintain the illusion of a solution for the high-level radioactive waste dilemma, so that building new reactors and keeping the old ones running can be "justified." It must be pointed out that electricity is but the fleeting byproduct of nuclear reactors. The actual product is forever deadly radioactive waste.

Dan Hirsch of Committee to Bridge the Gap has stated "It is hard to conceive of a proposed environmental regulation or action that raises such serious questions of inter-generational immorality." The significant numbers of people who would die from Yucca's leaking wastes over the course of time would have had no say in the decision to open the dump, nor would have received any supposed benefit from it, or from the nuclear reactors that generated the HLRW in the first place. Those future generations would bear only the cost, a large human cost.

EPA explicitly admits to such deadly double standards, citing the Swedish National Council for Nuclear Waste's (KASAM) position that "...our moral responsibility diminishes on a sliding scale over the course of time," and advocating a "Strong Principle of Justice" for the first 5 or 6 generations (roughly 150 years), a "Weak Principle of Justice" for a further 5 or 6 generations after that, and then a "Minimal Principle of Justice" beyond that. EPA's unethical and immoral proposal certainly would represent a horrible injustice for future generations. It is quite ironic, for DOE explains its rush to open the Yucca dump as a matter of inter-generational responsibility, in that current generations created the HLRW and thus should solve the problem so that future generations need not worry about it. Future generations would have much to worry about if EPA's proposal stands.

EPA's use of Colorado's higher level of "background radiation" in an attempt to justify allowing added doses of 350 mrem/yr to persons living downstream from Yucca's leaking radioactive wastes is twisted and unacceptable. EPA cites the national average for background radiation as 350 mrem/yr. But even this is wrong and misleading. About two-thirds of that figure is due to radon exposures within houses and buildings. Only natural radiation, such as from cosmic rays and other natural sources that people are exposed to outdoors, which is difficult to avoid or control, should be considered "natural background." EPA's proposed 350 mrem/yr dose from Yucca's leaking radioactive wastes would be in addition to the background radiation (including indoor radon) that people would already be exposed to. It should be noted that residents near Yucca are also exposed to additional radioactive contamination from the nearby Nevada Test Site's nuclear weapons explosions and "low" level radioactive waste shipments and dumping. In NAS's recent BEIR VII study, it reported that about 1 in 100 Americans will contract

cancer just from the non-radon component of background radiation. A full three percent of the American public can already be expected to contract cancer from their exposure to outdoor natural radiation plus indoor radon, so that “background” 350 mrem/yr is far from safe. Thus, EPA is proposing that a full 6% of the public living downstream from Yucca be allowed to contract cancer, half of that from “background” (including radon), and half from the leaking dump’s radioactive wastes. EPA has deceptively tried to blur the distinction between “background radiation” and Yucca’s leaking wastes, both of which are harmful to human beings.

Another casualty of EPA’s proposed rule is the Safe Drinking Water Act standard limiting radiation in drinking water to 4 mrem/yr, which EPA would only enforce for the first 10,000 years, but would then replace with the 350 mrem/yr all pathway exposure limit. Water is a precious resource, especially in arid areas such as Nevada and southeast California – Yucca’s watershed -- which will require more, not less, protection as time goes on. Yucca’s radioactive wastes will leak into the underlying drinking water aquifer, which will become the primary pathway for harmful doses to people downstream. The Safe Drinking Water Act standard should be applied to protect Yucca’s aquifer and the people downstream for as long as the high-level radioactive wastes remain hazardous, hundreds of thousands of years into the future.

Incredibly, EPA has claimed that “the Agency does not have reason to believe the environmental health risks or safety risks addressed by this action present a disproportionate risk to children.” EPA asks for evidence to the contrary. I would refer EPA to the work of Alice Stewart for starters, dating back to the 1950s, which shows clearly that children are disproportionately vulnerable to radiation’s harmful impacts to health.

EPA also states “This proposed rule does not have tribal implications...[and] does not have substantial direct effects on one or more Indian tribes, [or] on the relationship between the Federal Government and Indian tribes...” . This is preposterous. Yucca Mountain is sacred and still used as a ceremonial site by the Western Shoshone Indians, who retain rights to the land under the Treaty of Ruby Valley signed by the US government in 1863. The Western Shoshone traditional lifestyle, lived at and near Yucca since time immemorial, may again return to that area someday. This lifestyle could mean far higher doses than EPA’s “reasonably maximally exposed individual” living a “rural/residential” lifestyle would be exposed to.

Indigenous peoples and children are not expendable, and deserve the strongest of human health protections! That’s EPA’s job!

EPA’s proposed standards would be, by far, the worst in the Western world. The French repository program, for instance, would limit maximum doses, estimated to occur hundreds of thousands of years in the future, to 25 mrem/yr. This proposed EPA limit beyond 10,000 years would allow more than ten times higher radiation doses than the French limit. The Canadian program limits doses to about 10 mrem/yr for 10,000 years

but does not allow a sudden increase after that. The EPA proposal would allow a sudden jump from 15 mrem/yr to 350 mrem/yr after 10,000 years, a 23-fold increase!

The Yucca Mountain high-level radioactive waste repository would be by far the largest atomic waste dump, containing radioactively hottest waste, in the entire country. For that reason alone, the strictest of standards should be applied. This is, of course, not to say that other dumpsites or contaminated sites should be subjected to weaker standards. The most protective standards should be applied across the board.

Given all that DOE has done wrong over the decades (the nightmarish radioactive contamination of Hanford, Washington; Savannah River Site, South Carolina; Paducah, Kentucky; and countless other debacles come to mind), that's all the more reason that EPA should be the strong protector of public health and the environment, and should not be drastically weakening its regulations so that DOE's poor Yucca Mountain dump application stands a better chance of receiving approval from NRC!

EPA holds that “the rationale for the 350 additional millirems from 10,000 years and beyond deals with the amount of uncertainty that we’re faced with in projecting out 10,000 years...” This is a quote from an Associated Press article dated yesterday, attributed to EPA spokesman John Millett said. My simple question is, if uncertainty increases over time, shouldn’t the regulations be strengthened, not weakened to accommodate for that?! EPA seems, in its proposed rule, to largely think that “conservatism” is a bad or dirty word. When it comes to protecting human health and human lives and the environment, the most conservative, protective standards need to be applied.

A final point. “Equal protection under the law” is a cherished American principle. EPA’s proposal violates this, protecting certain generations to one standard, but other generations to a much weaker standard. The U.S. Declaration of Independence speaks of “life, liberty, and the pursuit of happiness.” It goes on to say that when government becomes inimical to these, it is the right and the duty of the citizenry to alter or abolish that government. Unlike some recently indicted politicians in this town, I do not call for the abolition of the EPA. We need the EPA to protect our lives, health, and environment, that’s its job. But we do call on EPA to alter its proposed Yucca Mountain rule, to make it truly protective, rather than of service to the nuclear establishment in industry and government, desperate as it is to maintain the illusion of a solution to its nuclear waste dilemma.

Thank you.