

American Nuclear Society 708-579-8203 main
555 N. Kensington Ave 708-579-8295 fax
La Grange Park, IL 60526 ans.org



August 1, 2014

Gina McCarthy, Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW.
Washington, DC 20460
a-andr-docket@epa.gov

RE: Docket ID: EPA-HQ-OAR-203-0689
Environmental Radiation Protection Standards for Nuclear Power Operations 40
CFR 190

Dear Ms. McCarthy,

On behalf of the 11,000 men and women of the American Nuclear Society (ANS), we appreciate the opportunity to comment on the U.S. Environmental Protection Agency's (EPA) Advanced Notice of Proposed Rulemaking (ANPR) for Title 40 of the Code of Federal Regulations (40 CFR) Part 190.

ANS believes EPA should move forward with a comprehensive rewrite of its Environmental Radiation Protection Standards for Nuclear Power Operations.

The current EPA radiation standards date back to 1977, nearly 4 decades ago. Since then, the global scientific community made substantial advances in understanding the health effects of ionizing radiation and has collected a large body of epidemiological data related to low level radiation exposure.

Furthermore, the larger environmental and health context in which EPA's radiation standards are used has changed. For instance, the growth of nuclear-based diagnostic medical procedures has increased annual average public exposure to ionizing radiation by nearly 200 mrem without any epidemiologically-detectable health consequences. Similarly, air travel, another significant source of public exposure to ionizing radiation, has increased fivefold in the US since 1975, without any detectable health impacts from the resulting additional exposure. Finally, there is now a fairly robust scientific consensus that climate change could pose significant potential risks to the general public. There is also consensus that the continuation and expansion of nuclear energy is a necessary component to any meaningful strategy to reduce CO2 emissions as a means of mitigating those potential risks.

While the standards in question apply specifically to the nuclear power industry, the risk modeling methodologies that underlie them must be consistent with those used in EPA's regulatory involvement (or lack thereof) pertaining to all other pathways of public exposure to ionizing radiation. As such, we believe that a properly revised standard based on the latest science and realistic risk assumptions would yield significant benefit to the public.

Our remaining comments are organized around the six issue areas identified in the Advanced Notice of Proposed Rulemaking.

Issue 1: Consideration of a Risk Limit to Protect Individuals

The American Nuclear Society believes that amended radiation standards should be based on a single, individual "effective dose" limit, weighted for tissues, age and gender, as defined in the International Commission on Radiological Protection (ICRP) Publication 103 (2007), and not a risk-based limit as suggested in the ANPR.

In calculating the effective dose limit, EPA should refrain from over-estimating the likelihood of dose contributions from multiple radiation sources, or from applying protective factors that have already been accounted for in the dose constraint. Both of these practices result in dose limits that are overly restrictive without appreciable improvement in safety.

It is overly restrictive to limit dose to members of the public to a fraction of the existing dose limit. Except in cases where multiple regulated facilities are closely co-located, the Maximally Exposed Individual, subject to the dose constraint from one source would be likely to receive no more than a trivial dose from more distant regulated facilities. Therefore, the dose limit recommended by the ICRP may be the most appropriate dose constraint for regulated facilities.

Issue 2: Updated Dose Methodology (Dosimetry)

ANS believes that the EPA should work to ensure that its dosimetry methodology is based on "effective dose" and is consistent with other agency regulations.

As noted above, the "effective dose" or "collective effective dose" is currently being used in ICRP language. The NRC currently uses the term "Total Effective Dose Equivalent" found under the "Standards for Protection Against Ionizing Radiation" (10

CFR Part 20). ANS encourages EPA to work with all other impacted regulatory agencies to adopt a standardized "effective dose" approach to maximize consistency.

Concurrently, new demographic information has been researched and reported since 40 CFR Part 190 was finalized. This data, specific to gender and age and respective to anatomy and physiology, also takes into account normal biologically diverse variables. Using these statistics, the Agency and other related government organizations should take a more educated age and gender averaged approach in order to determine a more realistic effective dose to the average person.

Issue 3: Radionuclide Release Limits

ANS strongly believes that an individual effective dose limit is sufficient for the protection of public health, and strongly recommends that EPA discard the radionuclide release limits that are found in the current version of 40 CFR 190.10 (b.) ANS finds them to be duplicative, unnecessary, and inconsistent with international practice.

Issue 4: Water Resource Protection

ANS believes that the Agency should use an "all-pathways" approach, and should not create separate dose criteria for water resources. While protecting groundwater is important, a pathway-specific limit is not necessary to do so, and could in fact be counterproductive by inappropriately focusing on only one exposure pathway. Again, ANS believes that consistent with international practice, an individual effective dose is the best approach to protecting public health.

Issue 5: Spent Nuclear Fuel and High-Level Radioactive Waste Storage

ANS believes that EPA should not create specific regulations addressing storage of spent nuclear fuel and high-level radioactive waste. The NRC has a robust regulatory framework for licensing and oversight of spent fuel storage facilities and repositories. As such, the combination of NRC regulation and a consistent effective dose limit set by EPA is the best approach to protecting public health and the environment.

Issue 6: New Nuclear Technologies



Although the general state of nuclear energy technology has advanced significantly since the 1970s, ANS does not believe that there are any new nuclear systems or processes in operation today that require specific EPA regulatory standards. Again, EPA should base its radiation standards solely on an individual, effective dose basis. This approach will allow for NRC to appropriately regulate the future deployment of new nuclear technologies without the need for revisions to EPA standards.

In closing, we are pleased to provide any additional information or comments as required.

Sincerely,

A handwritten signature in black ink that reads "Michael Brady Raap". The signature is written in a cursive style with a large, sweeping flourish at the end.

Michael Brady Raap
President