HEALTH PHYSICS SOCIETY

"Specialists in Radiation Safety"

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October 1, 2015

RE: Docket ID No. NRC-2014-0044
Comments in Response to Advance Notice of Proposed Rulemaking for Potential Changes to 10 CFR Part 50 Appendix I, Reactor Effluents

To whom it may concern:

The Health Physics Society[1] (HPS) is a professional organization whose mission is to promote excellence in the science and practice of radiation safety. The HPS appreciates the opportunity to provide responses to the questions published May 4, 2015, relating to potential changes to 10 CFR Part 50, Appendix I, Reactor Effluents.

Where the HPS has a formal position, it is noted; where it does not, we have provided information that the NRC may want to consider. We will continue to follow the rulemaking as it evolves, as it appears to be part of a larger issue of conformance of US regulations to international and national recommendations.

The HPS appreciates this opportunity to provide comments.

Sincerely,

Nancy P. Kirner, CHP
President, Health Physics Society

cc: Brett Burk, HPS Executive Director
Craig Little, PhD, HPS Government Agency Liaison
Robert Cherry, HPS President-Elect
Barbara Hamrick, HPS Chair, Scientific & Public Issues Committee
Joseph Ring, CHP, Chair, Government Relations Committee

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[1] The Health Physics Society is a non-profit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to include over 4,000 scientists, physicians, engineers, lawyers, and other professionals representing academia, industry, government, national laboratories, the department of defense, and other organizations. Society activities include encouraging research in radiation science, developing standards, and disseminating radiation safety information. Society members are involved in understanding, evaluating, and controlling the potential risks from radiation relative to the benefits. Official position statements are prepared and adopted in accordance with standard policies and procedures of the Society.

HPS Comments

NUCLEAR REGULATORY COMMISSION
10 CFR Part 50, Appendix I
[NRC-2014-0044]
RIN 3150-AJ38
Action: Advance notice of proposed rulemaking (ANPRM): request for comment.

Issue No. 1: Closer Alignment of 10 CFR Part 20 and 10 CFR Part 50, Appendix I, With the Terminology and Methodology Recommendations of ICRP Publication 103

Comment: The Health Physics Society supports Option 1b to revise the terminology and methodology for dose assessments in 10 CFR part 50, Appendix I, to more closely align with the recommendations of ICRP Publication 103, in parallel with any revisions made to regulations of 10 CFR Part 20.

In January 1992, the Health Physics Society (HPS) issued a position statement, "Compatibility in Radiation Safety Regulations," which was most recently reaffirmed in July 2007. This statement recommends that *"radiation safety standards . . . be consistent with the recommendations of the International Commission on Radiological Protection (ICRP), the National Council on Radiation Protection and Measurements (NCRP), and scientific consensus standards."*[1] From that perspective, HPS supports revision of 10 CFR 50, Appendix I such that it and 10 CFR 20 more closely align with the ICRP Publication 103 methodology and terminology. We believe that this approach *would allow internal consistency within the agency.* Currently dose estimates made for compliance with 10 CFR Part 50, Appendix I, rely on ICRP Report #2 dose conversion values and those in 10 CFR Part 20 rely on ICRP Report #26.

In making this comment, the HPS also recognizes that this change would likely result in little, if any, improvement in worker or public safety as the As Low As Reasonably Achievable (ALARA) philosophy has had a greater effect on dose reduction than have strict numerical dose limits. Nonetheless, there are intangible benefits, as described in SECY-12-0064, which can accrue from updating the regulations. Such intangibles include transparency in the regulatory process, consistent terminology and methodology, and comparison of technologies and operations across international borders and environmental media. Therefore, HPS recommends that the NRC consider working closely with licensees throughout the process to minimize the resource burden that implementation will cause.

Issue No. 2: Scope of Changes to NRC Guidance Documents Associated With 10 CFR Part 50, Appendix I in Terms of Regulatory Guide 1.109

Comment: In consonance with HPS Position Statement P004-1, the HPS supports Option 2B, Full Scope Revision. As stated in its ANPRM, under this option NRC "would consider" a complete revision to 10 CFR part 50, appendix I, and all NRC guidance documents, which would

[1] Health Physics Society, "Compatibility in Radiation Safety Regulations," HPS Position Statement P004-1; McLean, Virginia: HPS; July 2007.

include a total of more than 30 regulatory guides, NUREGs, generic communications, and associated software programs. A full-scope revision also involves evaluating new radioactive waste systems, updating dispersion models, new source terms, and rewriting RG 1.109, RG 1.110, RG 1.111, and RG 1.112.

If adopted, this option would obviously be a major undertaking and would require a number of years to be fully implemented. The HPS has no established position on how best to implement such a regulatory shift. One option is that those regulatory guides impacting the most licensees would be revised earlier. Another scheme might be that the older NUREGs, and regulatory guides be given higher priority. Again, HPS recommends that the NRC consider working closely with its licensees and fellow regulators throughout the process to minimize the resource burden that implementation will cause.

Issue No. 3: Detailed Considerations for Revising 10 CFR Part 50, Appendix I

Comment: Aside from the general comments provided on Issues 1 and 2, the HPS prefers not to offer specific comments on Issue No. 3. The HPS considers that NRC's licensees are in a better position to provide specific comments on impacts.

Issue No. 4: Metrication—Units of Radioactivity, Radiation Exposure, and Dose

Comment: HPS supports the use of SI units. HPS has a position statement[1] on the topic of the use of SI units for expressing radiation exposure and dose, quoted below:

> *It is the position of the Health Physics Society (HPS) that the International System of Units (SI) should be used exclusively when expressing radiological quantities. The continued use of traditional, yet outdated, units to express radiological quantities in the United States can have significant repercussions with regard to effective response to radiation emergencies. It will also have negative impacts on educating and conditioning future generations in the United States who are not well versed in the current scientific and internationally adopted radiological units.*
>
> *The continued use of traditional units:*
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> - *Hinders the exchange and interpretation of information even among radiation safety professionals, especially during a radiation emergency;*
> - *Provides an unnecessary barrier to public communication, and*
> - *Educates and conditions yet another generation of radiation protection practitioners who are not well versed in the current scientific and internationally adopted radiological units.*
>
> *Nearly all countries in the world, many with well-established nuclear industries, have effected this transition successfully, without compromising health and safety, and have demonstrated*

[1] Health Physics Society. Exclusive Use of SI Units to Express Radiological Quantities. HPS Position Statement PS025-0; McLean, VA: HPS; February 2012.

that complete conversion to current international units is certainly practical and doable.

The HPS believes the exclusive use of SI units to express radiological quantities is the responsible practice to promote—a practice that is long overdue in the United States.

That said, especially with regard to effluent limits and such units as Derived Air Concentration (DAC) and Annual Limit of Intake (ALI), it is recognized that conversion to SI units could, in some cases, result in more restrictive release limits if continuing to be stated as one significant figure. Therefore, upon choosing to convert such criteria to SI units, consideration should be given to using two significant digits.

HPS also recognizes that conversion from traditional to SI units is not a trivial undertaking and would not be accomplished in a short time frame. As the NRC noted in this ANPRM, it spans many documents, regulatory guides, and fundamental regulations. NRC should consider increasing coordination and communication between the various regulatory groups already involved in evaluating Dockets NRC-2009-0279, NRC-2015-057, and NUREG–1530, ‘‘Reassessment of NRC’s Dollar Per Person-Rem Conversion Factor Policy, Revision 1.’’ In its comments on Docket NRC-2009-0279, the HPS proposed a 5-year process. This recommendation may be overly ambitious. Arguing in favor of a shorter, rather than longer time-frame is the eventual attrition of the aging work force and the fact that existing educational institutions already prepare their students using SI units.