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From: Pryor, Kathryn H [kathy.pryor@pnnl.gov]
Sent: Tuesday, February 14, 2012 10:42 AM
To: WCOutreach Resource
Cc: Brett J. Burk; Vetter, Richard J., Ph.D., CMHP, CHP; Jones, Cynthia
Subject: Comments on Assumptions for env assessment of EST of SNF
Attachments: HPS NRC EIS SNF - 02-13-12.pdf

Christine –

Attached are the comments of the Health Physics Society on the Draft Report "Background and Preliminary Assumptions for an Environmental Impact Statement—Long-Term Waste Confidence Update". Thank you very much for the opportunity to provide these comments.

Kathy Pryor, CHP
President, Health Physics Society

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HEALTH PHYSICS SOCIETY

Specialists in Radiation Safety

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February 13, 2012

Ms. Christine Pineda
Project Manager
Office of Nuclear Materials Safety and Safeguards
Mailstop EBB-2B2
U.S. Nuclear Regulatory Commission
Washington, DC 20555-00001

Subject: Draft Report "Background and Preliminary Assumptions for an Environmental Impact Statement—Long-Term Waste Confidence Update"

Dear Ms. Pineda:

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 our comments on the draft report "Background and Preliminary Assumptions for an Environmental Impact Statement—Long-Term Waste Confidence Update."

The NRC draft report recognizes that long term storage of spent nuclear fuel (SNF) needs to be considered for a period greater than 60 years and selects a 300 year period for interim storage. This is consistent with HPS position statement PS-022-1, which recommends that interim storage period should be evaluated for a maximum of 300 years.

The draft report states that the proposed action is a change to the Commission's current Waste Confidence decision and rule which requires the Commission to revisit the issue of Waste Confidence every five to ten years. The report then describes four scenarios that will be analyzed to assess the magnitude and range of impacts and the safety of extended storage. The HPS agrees that the four scenarios presented adequately bound the options for long term storage of SNF. The transport of SNF has already been evaluated in previous licensing activities approved by the NRC, and only transportation activities that exceed the conditions already reviewed should be considered in this work.

The definition of a generic site provided in the draft report does not provide sufficient clarity to understand how many generic sites would need to be evaluated. This is particularly true for Scenario 1, where the draft report states that the NRC may need to evaluate up to 20 generic sites.

Care must be taken in the analyses to ensure that 'generic sites' remain generic and conservative to prevent making the process onerous and too specific. An analysis of the critical attributes of a generic site needs to be completed to ensure the `generic site' concept is not overcome by making the criteria too specific, resulting in too many options.

Given the huge uncertainties involved, it is important for NRC to develop a strategy to include uncertainty analysis in all impacted areas. The NRC should consider uncertainties such as the throughput of the SNF or waste (ranging from low to high estimates), demographic distributions, time progressions, together with other assumptions and parameters. The environmental impact statement (EIS) should specifically avoid the use of so called "average" approach as it does not represent the range of possible impacts. On this basis, the presentation of the EIS should also address the validity of the analysis and the interpretations within the context of the uncertainties analyzed. This comment applies to both the "qualitative" and "quantitative" analyses in order to achieve a balanced, unbiased approach toward the impact analysis.

Section 7 of the draft report states that the NRC will consider SNF radionuclides that are considered significant dose contributors both in the short and long term. The HPS recommends more clarity and justification regarding the group of radionuclides to be considered. Specifically, the report should detail whether the analysis will include short-lived fission products (i.e., those present immediately upon removal of fuel from the reactor) or only those present after some defined storage period in the spent fuel pool.

The HPS endorses the NRC's plans to consider the impacts of recent events in Fukushima, Japan and the Virginia earthquake in 2011. Given the unpredictability of very severe natural events, it is important for the NRC to consider rare but credible "beyond design-basis" accidents. HPS is concerned that, by using a regional average or other similar means to characterize the hypothetical sites, the impacts of these types of site-specific concerns may be lost. One of the lessons learned from Fukushima (i.e., a nuclear accident that is caused by a major earthquake and the subsequent tsunamis) is that these types of highly site-specific situations should be factored into scenarios for evaluating a generic site; otherwise such severe events will never be represented in the analysis.

It is unclear how NRC plans to address the cumulative impact as required by NEPA, given that the time frame will be protracted up to 300 years. The NRC should develop concepts for evaluation of cumulative impacts to many generations of the affected population for the EIS planning effort. The impacts may include human health, natural and cultural resources, land use, economic conditions, and transportation.

The NRC should consider addressing climate change issues, such as could be attributable to the greenhouse gas effects. Given the 300-year time frame, NRC should assess, either qualitatively or quantitatively, how climate change might impact the proposed alternatives. The effects could be due to the continued or increased use of nuclear power, and the corresponding increase in production of SNF and radioactive wastes.

The report states that the assumptions are to be based on the present-day situations. However, in 200-300 years, population growth (or reduction) may take place in the affected regions under analysis. The transportation corridors will also likely change in the affected areas with population

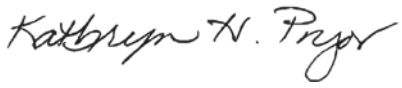
growth or reduction. The NRC should consider modeling strategies to handle the projection of the growth (or reduction) of populations in the affected regions.

Section 8.1(7) of the report briefly discusses the assumptions that will be used for SNF reprocessing. Given that spent nuclear fuel reprocessing has not been performed commercially in the U.S. for several decades, the NRC should provide more detail on the assumptions regarding technology and waste forms that would be used in the EIS.

The HPS endorses the NRC's intentions to consider the conclusions and recommendations of the Blue Ribbon Commission on America's Nuclear Future final report on the management of spent nuclear fuel in its update to the EIS and subsequent amendment to the Waste Confidence rule. The HPS also encourages the NRC to consider the issue of "Greater than Class C" wastes in these documents.

The HPS appreciates this opportunity to provide comments on this draft report. If you have any questions regarding these comments, please feel free to contact me at 509-371-7888 or kathy.pryor@pnnl.gov.

Sincerely,



Kathryn H. Pryor, CHP
President

cc: S.Y. Chen
Eric Goldin
Sarah Roberts
Rich Vetter
Brett Burk

[1] The Health Physics Society is a nonprofit scientific professional organization whose mission is to promote the practice of radiation safety. Since its formation in 1956, the Society has grown to approximately 5,000 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.