

# PUBLIC SUBMISSION

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**Docket:** NRC-2011-0012  
Disposal of Unique Waste Streams

2/22/2012

**Comment On:** NRC-2011-0012-0023  
Low-Level Radioactive Waste Regulatory Management Issues; Public Meeting

77 FR 10401

3

**Document:** NRC-2011-0012-DRAFT-0023  
Comment on FR Doc # 2012-16657

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## Submitter Information

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**Organization:** Health Physics Society

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RULES AND REGULATIONS

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## General Comment

Please see attached comments submitted on behalf of the Health Physics Society.

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## Attachments

HPS comments - LLRW issues - 07-12-12

HPS letter NRC Pt 61 - 07-12-12

SUNSI Review Complete

Template = ADM-013

E-RIDS = ADM-03

Add = M. Lee (MPL)

T. Moon (TXW2)



# HEALTH PHYSICS SOCIETY

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*Specialists in Radiation Safety*

July 12, 2012

Cindy K. Bladey  
Chief, Rules, Announcements and Directives Branch (RADB)  
Division of Administrative Services, Office of Administration  
Mail Stop: TWB-05-B01M  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**KATHRYN H. PRYOR, CHP**

**President**

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Attn: Rulemaking and Adjudications Staff

Subject: Docket ID NRC-2011-0012, **Possible Revisions to the Regulatory Framework for the Management of Low-Level Radioactive Waste (LLRW) per 10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste (77 FR 10401, February 22, 2012)**

Dear Ms. Bladey:

The Health Physics Society<sup>1</sup> (HPS) is a professional organization whose mission is to promote excellence in the science and practice of radiation safety. On February 22, 2012, the NRC issued a Federal Register notice (77 FR 10401) indicating the intent to conduct public meetings on possible revisions to the regulatory framework for the management of commercial LLRW, and requesting comments on a set of issues discussed in the referenced documents.

The low level waste management issues under discussion are to:

- Allow licensees the flexibility to use ICRP dose methodologies
- Establish a risk-informed approach to site performance to include a compliance period covering the reasonably foreseeable future that takes into account the decay of all disposed radioactive materials over time.
- Allow the flexibility to establish site-specific waste acceptance criteria
- Ensure compatibility and alignment between the States and Federal government requirements for site-specific performance assessments and site-specific waste acceptance criteria.

In COMWDM-11 0002/COMGEA-11-0002 (January 19, 2012) the NRC Commission also directed NRC staff to continue to pursue other RI/PB revisions to 10 CFR 61 as outlined in SECY-10-0165.

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HPS Comments on Low Level Waste Management Issues

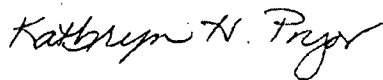
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The HPS appreciates the opportunity to provide our comments on the LLRW management issues presented in Federal Register notice 77 FR 10401. Our comments are contained in the enclosure to this letter.

If you have any questions regarding these comments, please feel free to contact me at 509-371-7888 or [kathy.pryor@pnnl.gov](mailto:kathy.pryor@pnnl.gov).

Sincerely,



Kathryn H. Pryor, CHP  
President

Enclosure

cc: Brett Burk  
Cyndi Jones  
Scott Kirk  
Sarah Roberts  
Rich Vetter  
Vincent Williams

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<sup>1</sup> 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.

**Health Physics Society (HPS) Response to U.S. Nuclear Regulatory Commission (NRC) Request for Comments on Possible Revisions to the Regulatory Framework for the Management of Low-Level Radioactive Waste (LLRW) per 10 CFR 61, Licensing Requirements for Land Disposal of Radioactive Waste (77 FR 10401, February 22, 2012)**

The HPS believes that the regulatory framework for management and disposal of LLRW needs a complete and coordinated overhaul. The regulation has remained essentially unchanged for 30 years and the time for an overhaul is past due. Waste classification and disposal requirements for any type of radioactive waste should be based on its potential risk to public health and safety, not on its origin or legislative stature. The goal of managing LLRW is to ensure the safety of workers and the public and to protect the environment. To achieve this goal, disposal, not long-term storage, is the best and safest long-term approach.

A number of specific technical issues related to the radiological protection of human health have been raised in the documents referenced in the Federal Register notice 77 FR 10401. Our comments are organized by these specific technical issues below.

- Risk-Informed/Performance-Based (RI/PB) Approach  
HPS strongly supports the use of a RI/PB approach to establishing or revising requirements for management of LLRW. The use of a RI/PB approach allows for flexibility based on the specific characteristics of a given disposal site and the LLRW disposed in that site. This type of approach allows for adequate protection of human health while avoiding excessive, overly restrictive requirements for disposal of LLRW with minimal potential impacts on human health. This approach constitutes an application of the optimization (or As Low As Reasonably Achievable (ALARA)) principle, which is a basic tenet of NRC regulatory philosophy.
- Site specific waste acceptance criteria  
Relative to the five RI/PB options discussed in SECY-10-0165, HPS supports a combination of two of the options described – a comprehensive revision of 10 CFR 61 and use of site-specific waste acceptance criteria. Specifically, HPS supports a comprehensive revision of 10 CFR 61, replacing the current waste classification system with the requirement to establish site-specific waste acceptance criteria. In order to take advantage of the RI/PB approach, NRC should modify its preliminary language to allow each applicant for a Part 61 disposal site and Part 61 licensee to establish site-specific waste acceptance criteria (WAC) based on the results of the site's performance assessment and intruder assessment. Establishing a WAC process considers the current classification requirements and utilizes site-specific analyses to assure the public health and safety regardless of the waste streams involved or classification of the waste. The WAC approach will ensure that all sites meet the performance objectives regardless of waste streams and site characteristics, and would result in an integrated safety envelope for the disposal facility.
- Compatibility and alignment between State and Federal government requirements  
HPS supports nationally-consistent radiation-safety standards, therefore recommends that the NRC work closely with the Agreement States to come to consensus on a single set of standards that may be adopted by all jurisdictions. In particular, due to the fact that LLRW generators, shippers, and/or processors of LLRW operate in all 50 states, it is likely there will be direct and significant trans-boundary implications related to any radiation-safety standards replacing, revising or bolstering those currently in 10 CFR 61.

- Site-Specific Analysis

Consistent with supporting a requirement to establish site-specific waste acceptance criteria, HPS also supports a requirement of a site-specific analysis for any LLRW disposal site (not just for depleted uranium or “blended” LLRW).

- Use of ICRP Methodologies

HPS supports the notion that all radiation protection regulations and standards, including those relating to the management of LLRW, should be based on current scientific consensus provided by the International Commission on Radiological Protection (ICRP) and the National Council on Radiation Protection and Measurements (NCRP). Accordingly, HPS supports the use of dosimetric methodologies described in ICRP Publication 103. This would include establishing quantitative performance objectives in terms of effective dose, and using “representative person” methodologies for assessing potential dose to members of the public (excluding inadvertent intruders).

- Period of Performance (POP)

HPS suggests that NRC consider the establishment of a risk-informed period of performance. The period of performance should be based on the site-specific inventory licensed for that site, the geo-hydrology of the site, the engineering features used to confine and contain the waste, and the plans and financing for institutional control. For most LLRW, a period of performance consistent with current guidance of 100 years with the option to continue past that is sufficient. By this time all but a few radionuclides will have decayed for ten half-lives or more, leaving unimportant quantities of several long-lived radionuclides diluted in very large volume of waste.

The remaining radionuclides will be  $^{63}\text{Ni}$ ,  $^{103}\text{Ru}$ ,  $^{89}\text{Sr}$ ,  $^{90}\text{Sr}$ ,  $^{238}\text{U}$ ,  $^{65}\text{Zn}$ ,  $^{95}\text{Zr}$ ,  $^{14}\text{C}$ ,  $^{129}\text{I}$ , and  $^{99}\text{Tc}$ . Some of these radionuclides will exist in small quantities and dilute concentrations for very long periods of time. The bounding case-construct of the intruder scenario should be balanced against the requirement for funded institutional control and environmental monitoring to assure performance. The intruder scenario is not risk-informed. It is reasonable to recognize that a period of performance that accounts for the lifetime of the vast majority of the disposed inventory and a funded plan for ongoing monitoring, maintenance and institutional controls of 10 CFR 61-regulated disposal sites is a better alternative than the speculative evaluation of inadvertent intrusion into a disposal site long after the majority of the radioactive material has decayed to unimportant quantities. These remaining quantities should be considered under the clearance levels suggested below.

- Establishment of Clearance Levels

HPS supports the establishment of clearance levels for radioactive material for which there is minimal or acceptable health impacts. However, the recent history of attempts to establish such levels in radiation protection regulations or standards suggests that future efforts to do so should be carried out under a revision to 10 CFR 20 instead of the proposed revision to 10 CFR 61.

- Greater than Class C Wastes

The HPS believes that DOE efforts to prepare an Environmental Impact Statement should move forward under the National Environmental Policy Act to evaluate additional alternatives for disposal of greater than Class C (GTCC) wastes. Primary consideration should be given to disposal of some quantities of GTCC wastes with other LLRW if the additional inventory does not substantially increase the inventory of those radionuclides already disposed in other wastes at existing sites. It is

the fractional release from an inventory that is the risk of concern. Other alternatives for disposal should also be considered, such as existing LLRW disposal facilities (both commercial and federal), and new facilities (both commercial and federal) at federal sites or on private land.