



# HEALTH PHYSICS SOCIETY

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*“Specialists in Radiation Safety”*

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September 29, 2004

The Honorable Pete V. Domenici  
Chairman, Energy and Natural Resources Committee  
United States Senate  
Washington, D.C. 20510

Dear Chairman Domenici:

The Health Physics Society, a scientific nonprofit organization of radiation safety professionals, appreciates that the Senate Energy and Natural Resources Committee is conducting a hearing on Low Level Radioactive Waste Oversight. The Health Physics Society strongly believes that nuclear technologies enrich the quality of life for our society but the beneficial uses must be balanced against any potential detriment that the waste streams associated with these technologies may pose to human health or the environment. Accordingly, I am forwarding a statement on issues related to management of low level radioactive waste that the Health Physics Society feels will be of use to your Committee as it provides oversight in this area.

I respectfully request the attached “Public Witness Testimony For The Record by the Health Physics Society” be entered into the record of the Committee hearing on Low Level Radioactive Waste Oversight.

Sincerely,

Raymond A. Guilmette, PhD.  
President

Attachment



# HEALTH PHYSICS SOCIETY

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*Specialists in Radiation Safety*

PUBLIC WITNESS TESTIMONY FOR THE RECORD  
BY THE  
HEALTH PHYSICS SOCIETY  
TO THE  
COMMITTEE ON ENERGY AND NATURAL RESOURCES  
UNITED STATES SENATE  
ON  
LOW LEVEL RADIOACTIVE WASTE OVERSIGHT  
SEPTEMBER 30, 2004

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## **INTRODUCTION**

Mr. Chairman, Ranking Member Bingaman, and distinguished members of the committee, the Health Physics Society (HPS) appreciates the Committee's conduct of a hearing on Low Level Radioactive Waste Oversight and greatly appreciates the opportunity to submit testimony sharing some of our observations and recommendations regarding the current national policy governing the disposition of Low-Level Waste (LLW).

The HPS strongly believes that nuclear technologies enrich the quality of life of our society. These technologies are used to diagnose medical illnesses without the need for invasive surgeries, treat cancers, conduct research, develop new kinds of pharmaceuticals, preserve our food supply, and generate over 20 percent of our nation's electricity from commercial nuclear power plants. These plants emit essentially no air pollution or greenhouse gases. There is, however, waste associated with these beneficial uses. As a matter of national policy, we believe that the beneficial uses that these technologies provide to our society must be balanced against any potential detriment that these waste streams may pose to human health or the environment.

We have reviewed the information contained in the recent report (GAO-04-604)<sup>1</sup> issued by the Government Accountability Office to your Committee in June 2004 and agree with the majority of its contents. We also believe that the current shortfalls in LLW disposal options are not attributable to any deficiencies in science or technology, but rather to the failure to garner the political resolve required to implement the Low-Level Waste Policy Act of 1980 (LLWPA), as amended in 1985, as directed by Congress.

## **THE NATION NEEDS PREDICTABLE LONG-TERM DISPOSAL OPTIONS FOR CLASS B AND C WASTES**

As you are aware, Congress enacted the LLWPA to distribute more equitably to each state the responsibilities for developing disposal capacities for LLW generated within each state's borders. Moreover, this legislation encouraged states to enter into regional interstate compacts with the intent that a single disposal facility would be licensed by a host state, and thereafter, could be used for disposal of LLW by any one of its member states. At the time Congress passed this legislation, only Washington, Nevada and South Carolina had commercial facilities licensed for LLW disposal. Since that time, however, deadlines established for creating a network of new disposal sites have since passed without opening a single new LLW disposal facility.

Three facilities are currently authorized to dispose of LLW in the United States. Of these, only two facilities are authorized to dispose of waste streams comprising the vast majority of the radioactivity in waste generated in this country (Class B and C low-level waste).<sup>2</sup> One of these commercial facilities, located in Richland, Wash., prohibits access to any state other than the 11

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<sup>1</sup> GAO report to the Chairman on the Energy and Natural Resources, U.S. Senate titled "Low-Level Radioactive Waste, Disposal Availability Adequate in the Short Term, but Oversight Needed to Identify any Future Shortfalls," (GAO-04-604), issued June 2004.

<sup>2</sup> Low-Level Radioactive Wastes are categorized into Class A, B and C waste as defined in Title 10, Code of Federal Regulations, Part 61.55. The basis for this classification is dependent on the concentrations and identity of specific radionuclides comprising the waste stream. Class A is the least radioactive and least concentrated level, while Class B and C have higher levels and concentrations.

states belonging to the Rocky Mountain and Northwest Compacts.<sup>3</sup> Additionally, because of actions taken by state legislators in South Carolina, access to its Barnwell facility will be strictly limited to the three member states of the Atlantic Compact<sup>4</sup> after 2008. Until then, the 36 states that do not belong to these three compacts may dispose of LLW at Barnwell. After the 2008 deadline, the 36 states will be forced to find costly and less-than-optimal alternatives for disposal of Class B and C low-level waste. Accordingly, many users of radioactive materials have developed plans, or have already constructed facilities, for safe interim storage of the wastes as a hedge against losing access to disposal sites. However, the construction, operation and security of such facilities is costly—placing a particular burden on academic, research and medical institutions both in the public and private sectors.

It is important to note that Class B and C wastes are largely composed of materials from nuclear power plants, including such items as used filter media and equipment and hardware that are no longer serviceable. These wastes also include materials from academic, government, industry, fuel cycle facilities and medical facilities—primarily in the form of expended radioactive sources. The volumes of Class B and C wastes are a small fraction (less than 0.5 percent) of the overall volume of disposed waste.

No significant health and safety impacts are expected to arise in the near-term as a result of limited availability or shutdown of disposal options for Class B and C wastes. The Nuclear Regulatory Commission (NRC) and its Agreement States will continue to maintain oversight of waste management practices to assure protection of public health and the environment. The Agreement States include the 33 states that have delegated authority from the NRC to regulate certain types of radioactive material. In addition, the NRC has the authority to enable safe disposal of radioactive materials on a contingent basis, if required. But ultimately, universally available options for permanent disposition of the wastes will still be required.

The HPS believes that the Compact approach created by the LLWPA has been unsuccessful, despite some good efforts, such as a proposed facility in Texas. In fact, it appears to the HPS that, in general, the LLWPA has unnecessarily restricted access to available disposal sites and impeded open commercial development of additional disposal facilities. The HPS encourages the Committee to continue to seek information and ideas on how it could more effectively implement, amend or replace the LLWPA to improve access to existing facilities and develop new waste disposition options.

### **LACK OF DISPOSAL OPTIONS MAY IMPACT EXISTING FEDERAL PROGRAMS TO SAFEGUARD SEALED SOURCES**

In August 2003, GAO reported to the Senate actions needed to improve the security of sealed radioactive sources.<sup>5</sup> The HPS commends the efforts of each federal agency that has undertaken significant improvements to impose more stringent security measures to safeguard the control of sealed sources. The additional measures include implementing a federal program for disposing

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<sup>3</sup> The 11 Member States of the Northwest and Rocky Mountain Compacts include Alaska, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

<sup>4</sup> The Atlantic Compact includes Connecticut, New Jersey and South Carolina.

<sup>5</sup> GAO Report to the Ranking Minority Member, Subcommittee on Financial Management, the Budget, and International Security, Committee on Government Affairs titled “Federal and State Action Needed to Improve the Security of Sealed Radioactive Sources” (GAO-03-804), issued August 2003.

and protecting orphan sources that exceed specific thresholds. It should be noted that many of these sealed sources were orphaned because of the excessive cost of disposal at LLW sites. Because of the levels of radioactivity contained in many of the sealed sources, they must be disposed of as Class B and C waste. After 2008, nuclear facilities in 36 states will be unable to dispose of sealed sources in their possession. The HPS believes that the lack of disposal options for sealed sources may lead to an increase in the number of orphan sources in states that do not have access to either the Rocky Mountain or Northwest Compacts. Therefore, the HPS encourages the Committee to seek additional information to ensure that the existing federal programs for safeguarding high-risk sealed sources are able to carryout this mission.

### **DESPITE LONG-TERM DISPOSAL OPTIONS FOR CLASS A WASTES, LACK OF COMPETITION RESULTS IN EXCESSIVE COSTS FOR MANY LICENSEES**

The HPS believes that although long-term disposal options for Class A waste are available, lack of competition results in excessive cost to waste generators. As noted in the GAO report GAO-04-604 waste generators are required to dispose of Class A waste at sites in Barnwell, S.C., Richland, Wash., or Clive, Utah. Excessive costs resulting from the limited disposal options have impeded the use of nuclear technologies that provide significant benefits to society. Consequently, the HPS recommends that the Committee seek additional information from industry, regulatory agencies and other stakeholders pertaining to disposal of Class A waste. Additionally, the HPS encourages the Committee to support rulemaking initiatives, which would allow access to as many as 20 Subtitle C hazardous waste disposal sites controlled by the Resource Conservation and Recovery Act (RCRA) for more cost-effective means for disposal of Class A waste.

As the GAO report notes, the current regulatory framework results in excessive and overly restrictive requirements for disposal of Class A low-level waste. A re-examination of certain aspects of this framework may yield new approaches that would increase the number of sites that may safely dispose of Class A low-level waste. In fact, several of these alternatives provide a safe means of disposing of Class A low-level waste in a risk-informed and graded manner. These proposals do not require further legislative actions, but could be implemented within the existing regulatory framework. The HPS believes that such a risk-informed, graded approach is consistent with the recommendations specified by the National Council on Radiation Protection and Measurements (NCRP) Report 139, "Risk-based Classification of Radioactive and Hazardous Chemical Wastes," issued in December 2001. This report incorporates the following principles:

- 1) The classification system is generally applicable to any waste that contains radionuclides, hazardous chemicals, or mixtures of the two
- 2) Wastes that contain hazardous substances are classified based on consideration of health risks to the public that arise from waste disposal
- 3) The waste classification system includes an exempt class of waste.

Implementation of the conceptual approaches contained in NCRP Report 139 should allow land disposal of limited concentrations of radioactive materials at sites that are designed and authorized to contain both hazardous chemicals and radionuclides at a regulated disposal site. The HPS believes that the guiding principals outlined in this report are germane to this hearing

and should be considered for seeking solutions to find safe, as well as more efficient and cost-effective means for disposing of LLW.

## **HPS SUPPORTS AN INTEGRATED FRAMEWORK FOR MANAGEMENT AND DISPOSAL OF LOW-ACTIVITY RADIOACTIVE WASTE**

The GAO report cited studies being conducted by the National Research Council and EPA that consider necessary changes to current LLW thresholds. The GAO noted that changes to this system are under consideration that could affect the amount of waste that must be disposed of in the future.

In November 2003, the EPA published an Advance Notice of Proposed Rulemaking (ANPR), “Approaches to an Integrated Framework for Management and Disposal of Low-Activity Radioactive Waste,” that sought input on a wide range of issues related to the possible use of facilities regulated under RCRA for disposal of certain quantities of radioactive materials.<sup>6</sup> Although the EPA requested comments on the most effective use of RCRA Subtitle C facilities for disposal of Low-Activity Mixed Waste (LAMW), they also requested comment on a variety of wastes regulated under the Atomic Energy Act (AEA). These wastes include certain wastes governed by the AEA, certain waste generated by the extraction of uranium and thorium, a variety of wastes characterized as Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM), and certain types of decommissioning wastes.

The EPA acknowledges that some wastes regulated under the AEA are excluded from regulations as “unimportant quantities” (i.e., source materials containing less than 0.05 percent uranium or thorium), while others are regulated down to the last atom. Additionally, the EPA acknowledged that the current practice of LLW disposal resulted in costly waste management practices and appeared to have an adverse impact on the health care industry to levels that were less than optimal. To address these issues, EPA solicited stakeholder input to find solutions needed to minimize the current practice of imposing dual regulatory authority for controlling disposal of the these types of regulated wastes.

Although the EPA requested comments on a variety of issues as specified in the ANPR, the following three questions appeared most important:

- 1) How can the disposal of LAMW be simplified?
- 2) Is it feasible to dispose of other Low-Activity Radioactive Wastes (LARW) in hazardous waste sites?
- 3) What non-regulatory approaches might be effective in managing LAMW and other LARW?

To minimize dual regulatory authority, the EPA acknowledged that such an integrated framework would also require changes to regulations established by the NRC and Agreement States under the AEA. In fact, the EPA noted a similar regulatory approach that has previously

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<sup>6</sup> Federal Register, “Approaches to an Integrated Framework for Management and Disposal of Low-Activity Radioactive Waste: Request for Comment; Proposed Rule, Volume 68, Number 222,” Nov. 18, 2003.

been successful in eliminating dual regulations.<sup>7</sup> This approach required deferral of EPA's authority under RCRA, thus allowing disposal of mixed wastes at sites regulated by the NRC, under Title 10 Code of Federal Regulations, Part 61. The EPA believed that such a rulemaking was justifiable since adequate protection of human health and the environment was ensured under the existing NRC standards. The EPA also stated that both agencies could pursue a similar and compatible rulemaking to further harmonize the management of certain regulated waste streams outlined in the proposed rulemaking. Should such a rulemaking go forward, it would afford the same level of protection. This approach would also reduce the regulatory burdens imposed by two separate regulatory regimes, the EPA said. To support this objective, the EPA would consider proceeding with a rulemaking that would allow disposal of waste streams that contain certain concentrations of radioactive materials at one of the 20 existing RCRA-regulated facilities. However, for this approach to succeed, the NRC must defer its authority under the AEA to allow disposal of licensed materials at sites regulated under RCRA, Subtitle C.

In April 2004, the HPS submitted comments on this rulemaking initiative, commending the EPA for its leadership in embarking on this important task.<sup>8</sup> As noted in our comments, we believe that disposal of LAMW and LARW at the RCRA sites that follow the mandated engineering design, waste treatment and disposal practices, will ensure protection of public health and the environment. In addition to addressing the necessary radiation standards successfully employed to protect human health and safety, our April comments addressed technical issues regarding the movement and fate of radioactive and hazardous materials in the environment. We noted that the movement of radioactive materials in the environment would generally share the same parameters as the chemical compounds of which they are a part, except to the extent that radioactive decay hastens their degradation. We included reference to a report by the California Office of Environmental Health Hazard Assessment that concluded that biodegradation of many RCRA hazardous waste constituents, comprised of heavy metals, are on the order of over 200,000 years, and thus, comparable to many of the long-lived radionuclides. As such, we suggested a concept based on the half-life of chemicals and radionuclides should be considered to better shape the definition of LAMW and LARW.

## **NRC RULEMAKING PROMOTES A SAFE APPROACH FOR CONTROLLING THE DISPOSITION OF SOLID MATERIALS**

The HPS supports the rulemaking for "Controlling the Disposition of Solid Materials" under consideration by the NRC. The HPS also supports the rulemaking under consideration by the NRC to adopt dose-based criteria that would allow for the unrestricted release of sources considered inherently safe.<sup>9</sup> Moreover, we support establishing dose criteria that would limit individual doses to an effective dose rate of one millirem per year. Establishing dose constraints at such levels are consistent with the recommendations specified in NRC Report 116, "Limitation of Exposures to Ionizing Radiation."

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<sup>7</sup> Federal Register, "Storage, Treatment, Transportation and Disposal of Mixed Wastes, Final Rule (40 CFR 266) and Hazardous Waste Identification Rule, Revisions to Mixture and Derived-From Rule, Final Rule (40 CFR Parts 261 and 268), Volume 66, Number 95," May 17, 2001.

<sup>8</sup> Letter from President Ken Kase to EPA, Air and Radiation Docket (Docket ID No. OAR-2003-0095), dated April 23, 2004.

<sup>9</sup> The HPS provided testimony on this matter before the Senate Committee on Environment and Public Works, Subcommittee on Clean Air, Wetlands, Private Property and Nuclear Safety on March 9, 2000.

The HPS also supports use of the annual dose limit and the derived screening criteria contained in the American National Standard Institute/Health Physics Society (ANSI/HPS) Standard N13.12, “Surface and Volumetric Radioactivity Standards for Clearance” (ANSI/HPS N13.12, 1999). This standard was developed for ANSI under the direction of the HPS Standards Committee. The standard received consensus approval through ANSI Committee N13 in August 1999. Moreover, our recommendation is in keeping with the intent of Public Law 104-113 “National Technology and Transfer Act of 1995” and OMB Circular A-119 “Federal Participation in the Development and Use of Voluntary Consensus Standards.”

This position is fully consistent with similar standards adopted by the European Community to support commerce across international borders. The International Atomic Energy Agency developed these radiological criteria,<sup>10</sup> specifying the concentrations of radioactive materials that are considered inherently safe. The basic radiological criteria used by the IAEA to derive radionuclide concentrations for the clearance of materials limited individual doses at an annual effective dose rate of 1 millirem. As a result, international radiological criteria for the release of solid materials are equally as protective to members of the general public as those specified in ANSI/HPS N13.12.

The NRC has requested comments on this rulemaking initiative that also pertains to establishing levels of radioactivity that would be unsuitable for unrestricted release, but appropriate for disposal (i.e., “Conditional Release”) at sites regulated under RCRA, Subtitle C. In fact the NRC held a public workshop with stakeholders to address the matter in May 2003.<sup>11</sup> During comments on this rulemaking, the HPS encouraged the NRC to conduct early consultations with other federal and state government agencies in support of disposals at RCRA facilities.<sup>12</sup> The HPS believes that these early consultations would better harmonize the relevant regulations and instill more public confidence in the regulatory oversight of LLW disposal.

Should the EPA decide not to proceed with its rulemaking as described in the ANPR, other alternatives should be explored to allow disposal of radioactive materials at RCRA sites within the existing regulatory framework.<sup>13</sup> Over the past several years, the NRC and EPA have implemented a Memoranda of Understanding that addresses instances where these two regulatory agencies have dual and overlapping authority.<sup>14</sup> This interagency process also could facilitate similar successes whereby the NRC could promulgate a “Conditional Use” rule, which would allow disposal of AEA materials at RCRA Subtitle C sites. Under such a rule, the NRC would defer its authority to EPA to ensure that such waste disposals were conducted in accordance with RCRA, Subtitle C standards.

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<sup>10</sup> IAEA Safety Series No. 115 *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources*, February 1996.

<sup>11</sup> The NRC requested comments on scope of proposed rulemaking in the Federal Register, “Rulemaking on Controlling the Disposition of Solid Materials: Scoping Process for Environmental Issues and Notice of Workshop,” Volume 68, Number 40, February 28, 2003.

<sup>12</sup> Letter from the HPS to the NRC, Rulemakings and Adjudications Staff, June 13, 2004.

<sup>13</sup> Currently, disposal of licensed materials under the AEA are disposed of at RCRA Subtitle C/D sites on a case-by-case basis in accordance with 10 CFR 20.2002.

<sup>14</sup> T.S. Tenforde, “Future Role of the NRC in Radiation Health Protection,” *Health Physics*, Volume 87, Number 3, pp. 312-317, September 2004.



## **A NON-REGULATORY ALTERNATIVE TO COMMERCIAL LLW DISPOSAL FOR CERTAIN RADIOACTIVE MATERIALS SHOULD BE CONSIDERED**

The HPS believes that solutions pertaining to non-regulatory approaches<sup>15</sup> to more effectively manage LARW are a sound regulatory policy. An approach that involves use of uranium mill tailings for disposal of a select type of Class A LLW (i.e., certain fuel cycle materials) is a logical alternative that should be considered to help ease the LLW dilemma. This approach was jointly proposed by the Fuel Cycle Facilities Forum (FCFF)<sup>16</sup> and the National Mining Association (NMA)<sup>17</sup> as an example of a non-regulatory approach as addressed in EPA's ANPR.

Disposing of high volume, low activity wastes in uranium mill tailings impoundments offers a number of practical advantages, and the existing regulatory framework can support such an approach. Existing mills have sufficient capacity to accept most, if not all of the fuel cycle industry's low-activity, high-volume waste well into the foreseeable future. Federal statutes require that mill tailings impoundments be turned over to the Department of Energy for long-term custodial care in perpetuity, at no cost to the government. In addition, federal statutes also require that mill tailings sites be protected for up to 1,000 years with no active maintenance and only passive controls, thereby providing greater protection than that offered by RCRA disposal facilities and existing commercial LLW disposal sites. This disposal alternative can be pursued within the context of existing legislation and federal regulations.

The NRC has a policy regarding the direct disposal of certain radioactive materials at uranium mill tailings facilities. These facilities normally contain waste generated from the processing or concentration of source material, known as 11e.(2) byproduct material. The existing policy and guidance that allows for disposal of non-11e.(2) material in mill tailing piles should be amended, and the NRC needs to liberalize its waste acceptance criteria for non-11e.(2) materials disposed in licensed uranium mill tailings impoundments. The FCFF and NMA are pursuing a joint initiative to propose to the NRC active regulatory, political, and economic consideration of using uranium mill tailings facilities for direct disposal of waste streams that are similar to uranium recovery wastes.<sup>18</sup>

Beginning in 1992, the NRC developed a policy for the direct disposal of non-11e.(2) byproduct material in such facilities. In a 1998 white paper, the NMA proposed that the NRC liberalize what types of non-11e.(2) materials could be appropriately disposed of in licensed uranium mill tailings impoundments. The NMA recommended that the agency develop generic waste acceptance criteria for such materials. The current joint FCFF/NMA initiative attempts to build

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<sup>15</sup> Non-regulatory approaches should be viewed as statutory actions that exist within the scope of an existing framework. Non-regulatory approaches should not be viewed as removal of such wastes from regulatory control or "deregulation of LLW."

<sup>16</sup> The Fuel Cycle Facilities Forum is a consortium of fuel cycle companies whose primary purpose is to provide a forum for addressing regulatory, technical and operational issues associated with the decommissioning of facilities currently or formerly involved in the processing of special nuclear materials and source material (primarily uranium and thorium).

<sup>17</sup> The National Mining Association (NMA) represents producers of most of America's coal, metals, industrial and agricultural minerals; manufacturers of mining and mineral processing machinery and supplies; transporters; financial and engineering firms; and other businesses related to coal and hard rock mining. NMA has member companies who are NRC licensees with uranium mill tailings facilities.

<sup>18</sup> In response to the EPA's ANPR, the FCFF and the NMA jointly submitted a White Paper that espouses the merits of disposal of non-11e.(2) materials in Mill tailings impoundments, and provides a complete and compelling regulatory basis for the option.

on the record developed by the NRC and on the NMA white paper to further refine the debate on this issue.

The history of LLW disposal and the history of the proposed use of mill tailings impoundments for non-11e.(2) disposal lend credibility to the argument that the existing policy on non-11e.(2) materials should be revisited and lays the foundation for this innovative approach. The FCFF/NMA white paper proposes regulatory, political and economic bases for generic waste acceptance criteria that could be debated in the regulatory marketplace among all relevant stakeholders, and subsequently serve as the basis for a technically sound disposal alternative for a large volume of low-activity waste throughout the United States.

A fundamental concern associated with the direct disposal of non-11e.(2) byproduct material in uranium mill tailings impoundments is that, if such material contains RCRA hazardous wastes, it could then subject the entire impoundment to regulation by EPA or delegated states under RCRA. A similar type of jurisdictional overlap might occur if any non-11e.(2) byproduct material containing Naturally Occurring Radioactive Material (NORM) subject to state regulation is disposed of in a mill tailings impoundment. This potential for dual or overlapping jurisdiction raises questions about the eventual transfer of custody of mill tailings to DOE, the long-term custodian. The Uranium Mill Tailing Radiation Control Act of 1978 (UMTRCA) requires Title II licensees to transfer custody of their uranium mill tailings facilities to DOE upon license termination, and DOE is required by Section 83 of the AEA to take the mill tailings and other property necessary for the proper disposal of 11e.(2) byproduct material. Since UMTRCA contains no provision requiring that DOE take custody of, or title to, materials other than 11e.(2) byproduct material, disposal of other materials could, without congressional action, pose an impediment to license termination and transfer of custody to DOE as the long-term steward.

Although DOE is only required to take title to and custody of 11e.(2) byproduct material under UMTRCA, the department has the authority to accept custody of AEA wastes other than 11e.(2) byproduct material under the Nuclear Waste Policy Act of 1980, including non-11e.(2) byproduct material, provided that

- 1) NRC requirements for site closure are satisfied
- 2) transfer of title and custody to DOE is without cost to the federal government
- 3) federal ownership and management of the site is necessary or desirable to protect public health and safety and the environment.<sup>19</sup>

Several categories of wastes have already been proposed for disposal in uranium mill tailings impoundments including: secondary process wastes generated during the capture of uranium in side-stream recovery operations; sludge and residues generated during treatment of mine water containing suspended or dissolved source material; NORM, and TENORM. Some fuel cycle facilities have expressed an interest in seeking NRC approval to dispose of special nuclear materials in existing tailings impoundments once the NRC addresses the issue presented in the referenced joint FCFF/NMA white paper. To address these and other issues, the NRC began its inquiry into this matter around a decade ago.

Under the regulations supporting UMTRCA, non-11e.(2) byproduct materials that are disposed of in tailings impoundments would be subject to stringent, ongoing and long-term oversight by the NRC and DOE with regard to both radiological and non-radiological hazards, making these facilities particularly appropriate disposal sites. Moreover, this superior protection would be achieved without the creation of new disposal sites. This approach is also philosophically

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<sup>19</sup> 42 USC § 10171(b).

consistent with the NRC's requirement "to avoid proliferation of small waste disposal sites and thereby reduce perpetual surveillance obligations." In addition, this approach would be consistent with long-standing policies favoring disposal over storage of LLW wastes.

## **RECOMMENDATIONS**

The HPS encourages the Committee to consider the following six recommendations as it deliberates on the most effective means to address issues pertaining to LLW disposal:

- Continue to receive information and ideas on how the LLWPA might be more effectively implemented, or amended or replaced, to improve access to existing facilities and develop new waste disposition options.
- Ensure that the existing federal programs for safeguarding high-risk sealed sources have disposal capabilities to allow them to carryout this mission.
- Take a broad look at the manner in which hazardous chemicals and radioactive materials are classified with regard to with the principles specified in NCRP Report 139. Adoption of this recommendation is needed to support a consistent risk-based system for the safe disposition of all hazardous substances.
- Provide the necessary support for the EPA to continue with a rulemaking for an "Integrated Framework for Management and Disposal of Low-Activity Radioactive Waste," as outlined in their Advanced Notice of Proposed Rulemaking.
- Support NRC actions to promulgate a rule on Controlling the Disposition of Solid Materials. Moreover, should EPA decide not to proceed with such a rulemaking, the Committee is encouraged to seek additional information on possible regulatory alternatives to allow use of RCRA Subtitle C sites for disposal of materials regulated under the AEA.
- Encourage the use of non-regulatory approaches that allow for the safe disposal of LLW within an existing regulatory framework.

## **CONCLUSIONS**

The HPS agrees with the majority of the information contained in the GAO report pertaining to management of low-level waste in the United States. The HPS agrees that the Low-Level Waste Policy Act needs to be more effectively implemented, or amended or replaced, to improve access to existing facilities and develop new waste disposition options. We believe that although disposal capacity for Class A low-level waste is sufficient for the foreseeable future, lack of competition currently results in costly waste management practices that impede the use of nuclear technologies that enhance the quality of life of those in our society. Consequently, we believe that several alternatives under consideration by the EPA and NRC may more effectively allow for the safe disposal of certain types of Class A low-level waste.