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**Subject:** FW: RESPONSE TO REQUEST FOR COMMENTS ON THE NRC'S LOW-LEVEL RADIOACTIVE WASTE PROGRAM

Attached are comments by the Pennsylvania Department of Environmental Protection's Bureau of Radiation Protection on the NRC's Low-Level Radioactive Waste Program. Pennsylvania is the "host state" for the Appalachian Compact (PA, MD, DE, WV).

The NRC requested comments in the Federal Register/Vol. 71, No. 130/Friday, July 7, 2006. The comments were also faxed to the attention of Mr. Ryan Whited at (301) 415 - 5397.

Thank you for the opportunity to provide comments.

Sincerely,

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## **RESPONSE TO REQUEST FOR COMMENTS ON THE NRC'S LOW-LEVEL RADIOACTIVE WASTE PROGRAM**

### **Commonwealth of Pennsylvania Department of Environmental Protection Bureau of Radiation Protection**

**Question 1:** What are your key safety and cost drivers and/or concerns relative to LLW disposal?

**Comment:** The 1980 LLRW Policy Act, as amended in 1985, established a framework for the states to provide for safe disposal of low-level waste (LLW) and encouraged the creation of compacts for the development of regional disposal facilities. Unfortunately, states and compacts have not been able to develop new disposal facilities due to a combination of political, financial and public perception issues and obstacles. The current compact system has been able to provide for safe disposal of LLW within the existing sites. However, disposal options for Class B and C waste are limited and may no longer exist for the majority of states and compacts after the planned closure of Barnwell disposal facility in 2008. The LLW generators outside the Atlantic Compact (Connecticut, New Jersey and South Carolina) can continue to process waste, minimize it and store it on-site. However, these approaches can be costly and storage of waste for a long period of time at or near the generators location is not desirable as it relates to the public health and safety. Although long-term disposal options for Class A waste is available, the lack of competition after 2008 could result in excessively high costs to LLW generators. This could significantly impede the use of beneficial nuclear technologies such as medical diagnosis and biomedical research and development.

**Question 2:** What vulnerabilities or impediments, if any, are there in the current regulatory approach toward LLW disposal in the U.S., in terms of their effects on:

- a. Regulatory system reliability, predictability, and adaptability;
- b. Regulatory burden (including cost); and
- c. Safety, security, and protection of the environment?

**Comment:** The current regulations of LLW are protective of the public health and safety. However, there are opportunities to better risk-inform and improve the effectiveness of LLW regulations for certain types of waste. For example, LLW does not include non-AEA wastes that may contain the same radiological hazard as LLW. The NRC does not regulate non-AEA wastes and state regulation of these wastes is inconsistent. Consequently, AEA wastes are subject to more stringent and more expensive disposal requirements than non-AEA wastes. Additionally, very large volumes of decommissioning and clean up wastes that contain extremely small

amount of radioactive material must meet very stringent disposal requirements of Class A waste. This is not a desirable situation as it could unnecessarily increase both the cost of disposal for very low-activity waste and the demand for LLW disposal facilities, which are currently very difficult to develop. The NRC recently embarked on a rulemaking for the disposition of solid materials that contain very low levels of activity. Unfortunately, the NRC Commission deferred this rulemaking for the time being.

Overall, LLW regulations and requirements should consider the potential risk and radiological hazards of the waste and not the origin of waste or its legislative stature.

**Question 3:** Assuming the existing legislative and regulatory framework remains unchanged, what would you expect the future to look like with regard to the types and volumes of LLW streams and the availability of disposal options for Class A, B, C and Greater-than-Class-C (GTCC) LLW five years from now? Twenty years from now? What would more optimistic and pessimistic disposal scenarios look like compared to your "expected future"?

Disposal of Class A waste is not a problem in the short or longer term, provided that the Energy Solution's facility (formerly Envirocare) continues to operate and accept this type of waste. This facility can accept about 20 years or more of such waste under its current license. The Barnwell and Richland facilities, which are licensed to accept all three classes of LLW, have adequate capacity to satisfy the disposal needs of the 14 states within their respective compacts. However, if Barnwell closes to out-of-state waste in 2008, the LLW generators in 36 states will be forced to store their Class B and C waste. This is not a desirable situation in the long-term and could have safety and security implications. The Waste Control Specialist (WCS) has submitted a license application to the State of Texas to operate a private LLW disposal facility. The State of Texas is scheduled to make a final decision on license issuance or denial in December of 2007. If the license is issued, the facility could open as early as 2008. If Texas facility were allowed to accept waste from non-compact states at a reasonable cost, it would mitigate a potential shortfall in disposal availability for Class B and C wastes.

It would be an optimistic disposal scenario if Barnwell continues to accept waste from outside the Atlantic Compact, Energy Solutions continues to accept Class A waste and receives approval for disposal of sealed sources and biological waste, and if the State of Texas approves the license application for the WCS proposed disposal facility. A pessimistic disposal scenario involves the planned closure of Barnwell to outside the Atlantic

Compact generators in 2008 and the rejection of the proposed license application for WSC proposed facility in Texas.

As it relates to GTCC waste, DOE has created the Off-Site Source Recovery Project as an interim step toward meeting its obligations under the law. This is a positive step but DOE's lack of timely progress in developing a permanent disposal facility for GTCC is a serious concern and could have safety and security implications in the long-term.

**Question 4: How might potential future disposal scenarios affect LLW storage and disposal in the U.S., in terms of:**

- a. Regulatory system reliability, predictability, and adaptability;**
- b. Regulatory burden (including cost); and**
- c. Safety, security, and protection of the environment?**

The future of LLW storage and disposal could vary significantly depending on the potential future scenarios described in comment 3 above.

It is possible that South Carolina might change its current law to allow continued access to Barnwell facility to generators outside the Atlantic Compact. If Barnwell facility is no longer available to LLW generators outside the Atlantic Compact, the majority of these generators could store their relatively small volumes of Class B and C waste indefinitely in the worst-case scenario. This is based on the fact that over 90 percent of Class B and C waste is generated by the nuclear utilities and these facilities have adequate on-site storage capacity. Under this scenario, the cost of disposal of Class A waste at the Energy Solution's facility could increase due to the lack of competition. Overall, the limited number of disposal options for LLW is an undesirable situation, both in terms of ensured access and market economics.

If there is a new LLW disposal facility in Texas that could accept waste from outside the compact, the situation will likely be more desirable. It would mitigate a potential shortfall in disposal availability for Class B and C wastes. It would also ensure a more reasonable disposal cost for Class A waste.

If the use of RCRA facilities expand (as proposed by EPA) to accept slightly radioactive materials, this could reduce future disposal cost for this type of waste. It could also help ensure longer-term disposal availability for higher concentrations of Class A wastes.

**Question 5: What actions could be taken by NRC and other federal and state authorities, as well as by private industry and national scientific and technical organizations, to optimize management of LLW and**

improve the future outlook? Which of the following investments are most likely to yield benefits:

- a. Changes in regulation;
- b. Changes in regulatory guidance
- c. Changes in industry practices;
- d. Other (name).

**Comment:** The current regulations, regulatory guidance and industry practices are adequate for safe management and disposal of LLW. However, we concur with the recommendation of the NRC Advisory Committee on Nuclear Waste (ACNW) that it would be prudent to identify a preliminary list of areas where 10 CFR Part 61 might be better risk-informed.

The recent report by the National Academy of Sciences, "Improving the Regulation and Management of Low-Activity Radioactive Wastes", proposes a tiered approach toward risk-informing low-activity waste practices. In summary, this tiered approach proposes changes to licenses and permits of individual waste generators or disposal facility operators seeking solutions for specific wastes; changes to guidance documents issued by federal and state regulators that provide interpretations for specific regulatory issues; changes to federal or state regulations that more formally codify requirements for specific management practices; and legislative changes to basic statutes and definitions that underline existing laws, regulations, or authorities. These are all proposed options for improving waste management and disposal practices, but we caution that any changes to the current LLW regulations should include stakeholder input and should consider any unintended consequences.

NRC should proceed with the rulemaking on disposition of solid materials containing very low radioactivity (Clearance Rule). A dose-based standard as proposed by the NRC staff in evaluating disposition options is highly recommended. This option would provide additional flexibility for disposal of low-activity waste and LLW while maintaining public health and safety. NRC should also review its previous guidance on LLW storage and modify it as appropriate. Considerations should be given to the potential need for storage of Class B and C waste after the closure of Barnwell disposal facility in 2008. In order to avoid any future confusion, the NRC and the industry should work closely on LLW storage issues to ensure that their respective guidance on waste storage is consistent.

The changes in industry practices, to a large extent, are based on economic considerations. However, considering the potential closure of Barnwell to out-of-state LLW generators in 2008, it is important that the industry implement timely and appropriate measures to further reduce the generation of Class B and C waste. This can be accomplished through

changes in facility operations to reduce radioactivity contents of certain waste streams, sharing best practices, and material substitution. The NRC and agreement states should play a more active role in promoting waste minimization (WM). This can be accomplished through development of WM guidance, tracking and trending of LLW generation information to ensure implementation of WM plans, and facilitating exchange of information and sharing of best practices.

**Question 6:** Are there actions (regulatory and/or industry initiated) that can/should be taken in regard to specific issues such as:

- a. Storage, disposal, tracking and security of GTCC waste (particularly sealed sources);
- b. Availability and cost of disposal of Class B and C LLW;
- c. Disposal options for depleted uranium;
- d. Extended storage of LLW;
- e. Disposal options for low-activity waste (LAW)/very low-level waste (VLLW);
- f. On-site disposal of LLW
- g. Other (name).

**Comment:** The comments to the previous questions address some of the issues raised in question 6. As it relates to GTCC waste, DOE's Off-site Source Recovery Program is an improvement. However, DOE has an obligation under the law and must proceed, in a timely manner, with the development of a permanent disposal facility for GTCC. Regarding Class B and C waste, many generators have contracted to dispose of their waste at Barnwell facility until mid-2008. Following the planned closure of Barnwell to outside the Atlantic Compact, LLW generators will be forced to store waste, which could involve additional cost and additional exposure to workers. This may not be a problem in the short-term, but in the long-term, considerations should be given to other options such as the use of DOE sites for commercial Class B and C waste and the development of a new disposal facility on a federal land. NRC should also review and evaluate its authority under 10 CFR Part 62 and 10 CFR Part 50.58. Specifically, the regulations in Part 50.58 allow the NRC to authorize other provisions for waste classification and characterization as long as there is reasonable assurance of compliance with the performance objectives in subpart C of this part. For example, it would be highly desirable if an existing LLW disposal facility that is not currently licensed to accept Class B and C wastes, could dispose of these wastes by demonstrating compliance with the performance objectives of the regulations (i.e., credit for engineered barriers, etc.).

The issues related to storage of LLW and disposal options for LAW have been addressed in comments to questions 2, 4 and 5.



Disposal of LLW on-site may not be a practical and desirable option for two reasons. First, some states and compacts have laws and regulations that would prohibit shallow land burial of LLW. Second, it can be expected that the public would strongly oppose this option.

**Question 7: What unintended consequences might result from the postulated changes identified in response to questions 5 and 6?**

**Comment:** We reiterate that any changes to the current LLW regulations should include stakeholder input, particularly since many states and compacts have adopted the existing definition of LLW and NRC regulations in 10 CFR Part 61. We support the view of the NRC ACNW that the improvements in risk-informing LLW regulations should be accomplished through licensing actions and regulatory guidance where possible. In the short term, it would be prudent to consider the first three approaches of NAS report (Tier 1, 2 and 3) described in comment 5 above to avoid any potential legislative changes.

The proposal to use commercial LLW should be explored however, this option could face opposition from the states where these facilities are located (i.e., Nevada, Washington and South Carolina, etc.). Also, DOE sites have more restrictive disposal requirements than the commercial sites, specifically for higher concentrations of LLW.

The proposal to use the EPA-regulated RCRA landfills for disposal of slightly contaminated materials (EPA ANPR and NRC Clearance Rule) may not be a viable option in some states. First, public stakeholders might oppose disposal of such waste in RCRA landfills. Second, some states have established regulations that would prohibit disposal of radioactive materials in landfills. Third, it may not be economically feasible for a RCRA facility to accept LLW due to additional cost associated with sampling, groundwater monitoring, radiation protection measures, etc.

**Question 8: Based on your observation of what works well and not so well, domestically and/or internationally, with regard to the management of radioactive waste and/or hazardous waste, what actions can NRC and other Federal regulatory agencies take to improve their communication with affected and interested stakeholders?**

**Comment:** Most importantly, there is a need for national-level leadership for responsible and timely solutions to the current radioactive waste management and disposal issues. There is also a need to educate the public about the relative risk of LLW and the benefits associated with the use of radioactive materials. The fact is that LLW is not more difficult to manage safely than hazardous waste. However, the public does not have the same

negative view of the hazardous waste as they have about LLW and LLW is much more visible in the media.

An important aspect of a successful process is to involve the public and other stakeholders very early in the process. This would increase public trust in the process and would establish credibility for the agency. During the initial phase of the process, the agency must assure the stakeholders that their input and issues are important to the process and would improve the quality of the decisions. It would be highly desirable to begin the process, particularly if the issues are complex, with small group of interested stakeholders and expand it to a broader public participation. Public meetings are generally effective for sharing information and educating the public, but they are not very effective for making decisions. A public value survey can also play an important role in identifying issues that are important to the public.

It is important to note that the concept of risk assessment is generally complex to an average member of the public. It would be more effective to focus on risk management as much as possible. Additionally, the concept of relative risk (comparing risks associated with various activities) is an effective tool in educating the public about actual radiological hazards of LLW. Finally, it is important that the interested stakeholders and members of the public continue to have access to the latest information throughout the process and be able to provide input on an on-going basis.

**Question 9:** What specific actions can NRC take to improve coordination with other Federal agencies so as to obtain a more consistent treatment of radioactive wastes that possess similar or equivalent levels of biological hazard?

**Comment:** It is imperative that NRC communicate and coordinate its activities with other appropriate Federal agencies (i.e., EPA, DOE, DOD, etc.) to ensure consistent treatment of radioactive wastes that pose equivalent levels of hazard. This can be accomplished through formation of interagency working groups or committees. An effective integrated process should also include agreement state representation where possible. This integrated approach could accomplish the goals of eliminating dual regulations and development of uniform radiation protection standards or criteria. In some cases legislative or regulatory initiatives and changes might be the only options available however, other approaches such as the development of guidance documents, technical position papers and Memoranda of Understanding should take precedent.