



*Council on Radionuclides and Radiopharmaceuticals, Inc.*

3911 Campolindo Drive  
Moraga, CA 94556-1551  
(925) 283-1850  
Fax: (925) 283-1850  
E-mail: corar@silcon.com

Henry H. Kramer, Ph.D., FACNP  
*Executive Director*

**April 1, 2009**

## **SUMMARY OF MAIN ISSUES CONCERNING LLRW**

### **CURRENT LLRW MANAGEMENT PRACTICES THAT SHOULD BE MAINTAINED**

1. NRC and Agreement States regulations and licensing procedures are robust and well tested to provide for safe and secure LLRW storage, transfer, disposal and disposal site monitoring.
2. NRC has the appropriate regulatory framework that addresses both occupational and public protection.
3. NRC and Agreement States should continue to regulate the disposal of LLRW at all disposal sites.
4. LLRW disposal site performance should continue to be based on a 25 mrem/y dose limit and the ALARA principle.
5. The NRC should continue to exempt sealed sources returned to qualified manufacturers from radwaste export/import requirements.
6. LLRW with half-lives greater than 120 days are prohibited from long-termed storage on a generator's site when viable disposal options are available. This is required to optimize the safety and security of LLRW.
7. The NRC Regulatory Issue Summary 2008-12 "Considerations for extending interim storage of LLRW by Fuel Cycle and Materials Licensees, dated 5/09/08, provides practical guidelines for safe and secure temporary storage of LLRW due to lack of access to suitable LLRW Disposal Sites such as restricted access to the Barnwell, S.C. site after June 30, 2008.
8. The tracking of the storage and transfer of Class B and C and GTCC radwaste should be continued. This becomes less burdensome if access for prompt disposal of radwaste is maintained.

9. Access to cost-effective LLRW disposal to the Richland, Washington disposal facility should be continued for generators in the NorthWest and Rocky Mountain Compacts and generators of radwaste from accelerator produced materials.
10. Radwaste disposal needs should not change significantly in the next twenty years.
11. Congress should ensure that the DOE Off-Site Source Recovery program at Los Alamos National Laboratory is continued and adequately funded.

## **CURRENT LLRW DISPOSAL ISSUES**

1. Barnwell, S.C. disposal site closed access to generators in 36 states. These generators will not be able to dispose Class B and C, GTCC and Class A sealed sources and biological radwaste. Access to the Barnwell site is now restricted to generators in South Carolina, New Jersey and Connecticut.
2. It would be expected to take 5-8 years to establish access to alternative disposal. However, a LLRW disposal in Andrew County Texas received a license on 1/14/08 to accept LLRW for generators in Texas and Vermont. This site is expected to start receiving radwaste in 2010 and may be able to accept radwaste from out-of-compact generators.
3. It is politically difficult to establish new LLRW disposal sites.
4. The cost of LLRW disposal is too high for generators in 36 states due to the following reasons:
  - a. Restrictions on disposal options.
  - b. Lack of free market competition between accessible disposal sites.
  - c. Fees and surcharges above reasonable disposal and disposal site management costs.
  - d. Inappropriate classification of radwaste and disposal site classification.
5. Access for cost-effective LLRW disposal is unreliable.
6. Certain mixed wastes are prohibitively expensive to treat and dispose.
7. When generators are forced to store radwaste on site for an unspecified time the following issues may arise:
  - a. Storage space may be insufficient, unsuitable or costly to maintain.
  - b. Radwaste in storage must be sealed and regularly maintained.
  - c. May cause additional radiation exposure.
  - d. May require licensee to increase possession limits and require costly enhanced security provisions.
  - e. Radwaste may deteriorate in storage, requiring repackaging and incurring additional radiation exposure.

- f. The stored radwaste may not be in correct form when disposal access is eventually restored if disposal conditions and requirements have changed. This could require reprocessing, repackaging and incur additional radiation exposure.
- 8. Class B and C and GTCC radwaste in storage is considered an attractive target for malevolent misuse to cause local public panic.
- 9. Loss of access for cost effective treatment and disposal has adverse effect on biomedical research and healthcare causing the discontinuation of certain practices.
- 10. Certain  $^3\text{H}$  and  $^{14}\text{C}$  labeled research products are no longer available to the research community due to unnecessarily high radwaste costs.
- 11. The public and legislators are generally unaware of the social benefit of radioactive products that generate radioactive waste during manufacture or use.

## **SOLUTIONS TO LLRW DISPOSAL ISSUES**

1. Safety and Security of LLRW should be optimized by providing cost-effective, safe, secure alternative access to 2 to 3 disposal sites.
2. The development of alternative disposal access should be started as soon as possible.
3. The NRC should qualify DOE radwaste disposal sites to accept commercial LLRW.
4. The DOE should provide a full range of treatment and disposal options at underutilized or new sites until cost-effective commercial sites are available.
5. The DOE should extend emergency provisions for accepting LLRW including unwanted sealed sources to ensure that all radwaste is not orphaned.
6. The use of temporary storage sites should be avoided unless critically needed to ensure the safety and security of abandoned LLRW.
7. The Clive, Utah and Andrews County, Texas radwaste disposal sites should be licensed to accept all commercial Class A, B and C LLRW.
8. The EPA should work with the NRC to provide access for LLRW disposal at RCRA-Subtitle C and D hazardous waste disposal sites.
9. The NRC should promulgate a 1 mrem/year clearance standard for both unrestricted and restricted release to avoid unnecessary disposal in LLRW disposal sites. The EPA should work with NRC to harmonize a clearance rule.
10. The EPA should assist States to implement the EPA's Conditional Exemption Rule for mixed waste management.
11. To ensure uniform regulations, regulatory agencies with overlapping jurisdictions should defer to the lead agency, which will normally be the NRC.
12. Radwaste generators should be allowed sufficient flexibility in LLRW management and timing of transfer for disposal to ensure safety and security is optimized.
13. GAO should investigate the cost differences between LLRW disposal sites and determine which costs are unnecessary.
14. The NRC should establish a revised LLRW classification system based on the risk and form of the waste rather than its origin.

15. The DOE should revise their LLRW generators classification to better inform the public of the quantity of radwaste associated with biomedical use of radioactive materials.
16. Decommissioning and radwaste management regulations should exempt unwanted sealed sources from being considered as waste in recognition of their resale and recycle value.
17. The appropriate disposal of sealed sources at commercial sites should be enforced rather than allowing sources to be disposed by the DOE.
18. LLRW A,B and C Classifications should be based on actual disposal site conditions to accommodate certain long-lived radiochemicals such as  $^{14}\text{C}$ ,  $^{99}\text{Tc}$  and  $^{129}\text{I}$ .
19. The LLRWPA should be amended to accommodate the above proposed solutions where necessary.