

WM2009 Conference Panel Report

Panel Session 54 - US NRC (10 CFR 61 Regulations) Compared to US EPA (RCRA Regulations) Disposal Sites: Viable Options for US Very Low-Level Waste Disposal

Panel Reporter - Larry Camper, US NRC

SUMMARY: The panel focused on a comparison of the technical and regulatory criteria associated with 10 CFR Part 61 and RCRA sites with an emphasis on addressing the viability of using RCRA sites for disposal of very low-activity radioactive waste (LAW).

Panelists, representing both regulators and representatives from industry, included:

- James Kennedy (US NRC)
- Christine Gelles (US DOE)
- Daniel Schultheisz (US EPA)
- William Dornsife (Waste Control Specialists LLC)
- Stephen Romano (American Ecology Corporation)
- Shaun McCabe (Studsvik, Inc.).

James Kennedy (US NRC) summarized 10 CFR 61 and RCRA as achieving the same goals through different approaches. 10 CFR 61 uses a performance-based approach whereas RCRA uses a technology based approach. Four performance objectives are used in 10 CFR 61 as the criteria to determine if safety is achieved, and these performance objectives are supported by a site-specific performance assessment. Mr. Kennedy presented a figure showing the spectrum of radioactive wastes, with very low-activity radioactive waste (LAW) falling on the low end of Class A waste and comparable to natural materials in some cases. Mr. Kennedy noted that one of the challenges and potential areas of improvement with 10 CFR 61 is that it didn't provide a lower cut-off for Class A low-level waste. Mr. Kennedy noted that the IAEA has developed a draft safety guide on waste classification (DS-390) that expands the waste classes from four to seven, defines very low-level waste (VLLW). Jim discussed the 20.2002 process that NRC uses for low activity waste and noted that the trend for 20.2002 disposals has been for offsite disposals and that most approvals are below clearance levels (which were explained to be 1 mrem). The path forward for the NRC is to develop an internal procedure in the next couple of months to ensure greater consistency of reviews and to develop a Standard Review Plan (SRP) over a longer timeframe.

Stephen Romano from American Ecology Corporation provided the perspective of industry for the Grandview, Idaho RCRA Subtitle C facility that has a long-standing practice of NORM disposal. The site characteristics for the facility are consistent with a Part 61 facility: low precipitation, a very deep aquifer (3000 ft), and minimal leachate generation. The bounding case for performance of the facility is radon emanation, and safety is assured through disposal cap design. Approximately 54% of the waste by volume in the Grandview facility is LAW. The typical types of waste received are diffusely contaminated soil, waste from the production of oil and gas, NARM, and generally and specific exempt materials. In Idaho, the State sets conditions and issues approval to accept LAW. Dosimetry of personnel and environmental monitoring are required. Approvals are issued on a case by case review. In summary, Mr. Romano stated the NRC process of allowing evaluation on a case by case basis is established and working, no changes to Part 61 are needed, and Part 61 and RCRA regulations are not incompatible.

Christine Gelles from DOE provided an overview of the disposition of LAW within DOE. DOE Order 435.1 provides for DOE self regulation of radioactive materials disposition and DOE Order 5400.5 provides for clearance of radioactive materials (control clearance of DOE real and personal property). DOE manages many different types and quantities of waste with much of the waste being very high volume/ low activity waste. An authorized release and clearance process is an important element of the waste management strategy. DOE Order 5400.5 applies a 100 mrem/yr limit for exposure of members of the public from all sources and pathways, of which 1 mrem/yr is applied to personal property. Release authorizations are done by field managers, with realistic but reasonably conservative assessments. DOE is working on revisions to DOE Order 548.1 which would result in no changes to limits, but potential enhancements in other areas such as public notification and ALARA considerations. Past releases of LAW have occurred at Brookhaven, Paducah, Ashtabula, and Battelle.

Shaun McCabe of Studsvik Inc. provided a second industry perspective. Mr. McCabe was very supportive of the use of RCRA facilities. He believed that NRC does not need additional program review and that it is the State's prerogative to enact the disposal of LAW at RCRA facilities. He expressed the view that radioactive materials should be under a materials license, and that industry has proven itself able to take on this task (disposal of LAW in a RCRA facility). The main elements of any process for disposal of LAW waste should be: technically sound, cost appropriate, good science, and conformance with a risk-based philosophy.

Daniel Schultheisz of EPA provided a second view of a regulator in an abbreviated version of materials that had been previously presented in 2003. Daniel is the team leader for EPA's LAW program. The objectives of a LAW program should be to establish a risk-basis for disposal through modeling, provide a more consistent disposal framework based on risk, provide a more efficient use of resources in risk reduction, and provide a lowered potential for mismanagement. EPA considered the use of RCRA landfills because they provide a robust regulatory framework. Some potential issues that remain to be resolved between the RCRA and Part 61 approaches include differences in land ownership, level of oversight, impacts on the current framework, and public acceptance. EPA's effort in this area had been substantially curtailed due to effort on the Yucca Mountain standard. EPA is interested in suggestions and no final decisions have been made.

William Dornsife (WCS LLC.) provided a comparison of the key elements of RCRA requirements to Part 61. There are differences in maintenance requirements and land ownership requirements. The most significant difference is in the approach to determining performance, with RCRA being design-based and Part 61 being performance-based. However most RCRA facilities have a 5 m thick cover and a 3 ft thick clay liner, which Mr. Dornsife believed would result in achieving levels of performance comparable to Part 61 facilities. For WCS, a detailed safety assessment is performed for disposal of LAW using RESRAD. Both resident and intruder scenarios are evaluated. In addition, the facility maintains a radiation safety program. All workers are radiation workers and environmental monitoring is performed. WCS has worked with NRC and State regulators to develop policies to facilitate the disposal of LAW. Those efforts have met with limited success. However, Mr. Dornsife believes the current approach works and has saved money. The system should not be upset even if it is not ideal and could be perceived to be 'patch work'.

Initial discussion focused on what has been the public reaction. Most parties believed that public reaction has been rather muted, with a few exceptions. Although a member of the audience questioned whether the public is truly informed, and that perhaps if they were more informed the reaction would be different.

A member of the audience suggested that the international community has made significant progress, and that NRC should update Part 61 in a prospective manner. Mr. Kennedy state that NRC has a paper on depleted uranium in front of the Commission with an option to risk-inform the waste classification

system. However, such a step would be a big decision that would impact a lot of people. Mr. Camper noted that such a revision would take a significant amount of time and resources, and that the NRC's low-level waste program is only currently funded in maintenance mode.

The panel discussed the issue of blending. The members of the panel from industry stated that their State's do not allow blending of waste to avoid regulation or change the waste classification. Any changes that are made at the federal level to blending should have input from the State's and industry stakeholders. Mr. Kennedy from NRC stated that a Commission paper on blending should be to the Commission in the next few months.

In summary, the panel members from industry generally expressed the view that the current system, while not ideal, generally works and the decisions on the disposal of very low activity waste should be made at the State level. The representatives from the federal regulatory agencies acknowledged these views but are open to suggestions for improvements in the regulation and disposal of low activity waste that can increase efficiencies and improve consistency.