

Clarification on Resin Beds

I was pleased to read your article on low-level waste in the May/June issue of *Radwaste Solutions* ("There Is No Commercial Low-Level Waste Disposal Crisis in the United States—Yet!" p. 14). It is nice to know someone is talking about it. No one in our industry seems to want to deal with this until 2008. Security, Yucca Mountain, Plant Aging, and the Aging Work Force fill the space for commercial nuclear power plants. LLW does not make the list.

I fear, however, that you did not correctly pick up on the Class B/C waste reduction efforts some plants are making. We are not changing out beds more frequently to prevent the generation of Class B/C waste. The Plant Operations group's prime mission is to run the reactor and make electricity, not become a spent resin canning factory. The steps some plants are taking is to alter the resin loading in plant vessels so that they can change out beds *less* frequently. A large dual-unit pressurized water reactor can reduce Class B/C resin generation down to 200 ft³/yr or less by separately packaging Class A beds from B/C resin and extending the life of B/C resin beds.

This small volume greatly reduces the need for onsite storage should Barnwell close to out-of-region NPPs and Envirocare fail to open a Class B/C trench. Reduced generation has made the capacity of some onsite storage buildings (sized to hold an estimated 5 years of waste) more than enough to hold life-of-plant Class B/C wet waste.

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Thoughts after Touring the Yucca Mountain Tunnel

I'm generally considered a "feet on the ground" kind of guy, but when I recently was presented with an opportunity to tour the Yucca Mountain site and found myself in the tunnel for the first time, I felt I had been transported into a different world, a seeming eighth wonder, and there I was within this marvel.

This Herculean accomplishment is a man-made excavation drilled through five miles of the mountain using a tunnel boring machine (TBM) dubbed the "Yucca Mucker," a 700-foot-plus monster transported on railroad tracks. The sight leaves one aghast at its vastness.

Major subtasks included the installation of tunnel supports using steel plates, rock bolts, wire mesh, and shotcrete, as appropriate. The extraction of tens of thousands of tons of crushed rock and other debris added to the immensity of this undertaking. The amount of rock removed is enough to fill a football field, including the end zones, to a height of almost 45 ft.

Another feat is that after almost five miles of drilling, daylighting—or, as tunneling neophytes say, breakthrough—occurred within three centimeters of the target center point established at the start of tunneling. Considering that the TBM drilled a 25-ft-diameter tunnel, this was nothing short of amazing.

Interestingly, all utilities for the TBM (power, electrical, lubrication, water, etc.) were continually fed into the tunnel as the digging progressed, because the TBM was not designed with the capability to travel in reverse.

Not to be overlooked are the extensive quality assurance records prepared for each sample taken from the mountain. They track sample "life," including all hand-offs, and will adequately support responding to any custodial questions that could be asked.

The excavation story can be read until the print becomes a blur, but it takes active physical presence to really appreciate the immensity of this accomplishment.

Sadly, the future of this magnificent Project remains an open question. There are many technical and legal hurdles that remain to be successfully overcome. Currently, the Project continues to produce valuable information about the mountain.

However, no matter what the eventual outcome might be, my hat is off to the Yucca Mountain tunneling crews and the design engineers whose creativity set it all in miraculous motion.

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