

O where, O where can Illinois store its nuclear waste?

By Jim Nowlan

*The Economist* magazine reported recently that Illinois is home to more radioactive, spent nuclear fuel than any state in the nation.

Should that concern us? Why else would this highly respected magazine have carried a story about it?

The problem is that the 9,000 tons of radioactive nuclear waste stored, supposedly temporarily, at reactor sites across our state has no place to go.

The nuclear industry and its ardent opponents agree on this much, if nothing else—all that waste should be moved to a permanent site. Ultimately this site will likely be somewhere in a sparsely populated location in the West, where some of the waste will continue to be lethally radioactive for at least 10,000 years!

I asked representatives of Exelon, our state's nuclear energy generator, as well as skeptics and opponents of nuclear power what level of concern Prairie State residents should have for their safety on this matter: none, little, some, a great deal?.

I could have written the scripts in advance.

Pam Cowan, director of spent nuclear fuel at Exelon, said there is absolutely nothing to worry about. David Lochbaum of the Union of Concerned Scientists said we should have “little to some” concern, and David Kraft of Chicago, a longtime nuclear power opponent, weighed in that we should have “a great deal of concern.”

Whom to believe? First, some background.

Nuclear energy provides 20 percent of the nation's electricity and fully half of that in Illinois. Our state has 11 nuclear reactors located at six power plants.

Nuclear power is a mixed blessing. The splitting of the atom generates copious amounts of carbon-free electric energy, but unstable, radioactive atoms given off in the process are lethal.

Thus the spent fuel rods at nuclear reactors must be stored safely until the radioactivity has stabilized, or decayed, and is no longer harmful.

For decades, the plan has been to create one or more permanent waste disposal sites for all the spent nuclear fuel that has been created over the past six decades at dozens of reactor sites in 38 states.

As you might expect, nobody appears to want 77,000 tons of nuclear waste stored in their backyard.

After years of study, a permanent waste repository was sited at Yucca Mountain, about 100 miles north of Las Vegas, Nevada.

In 2008, however, U.S. Senate majority leader Harry Reid of that state persuaded Barack Obama to oppose the Yucca Mountain site, in return for his support in the presidential election that year and after in the Senate. So we have no permanent site.

Nuclear waste in Illinois is stored either in deep pools of water, which cool the hot spent fuel rods, or in 20-foot high concrete and steel casks, which are air-cooled. About 80 percent of Illinois waste is stored in 45-foot deep pools, the remainder in casks.

If water were accidentally to drain completely out of a pool, intense heat would build up, creating fires and explosive dispersion of radioactive rays and particles. The U. S, Brookhaven National Laboratory issued a report in 1997 that estimated as many as 70 “prompt fatalities” and 31,000 “latent fatalities” (largely from cancers later) in a 50 mile radius could result from a “full pool” accident.

Pam Cowan of Exelon, a nuclear engineer, declares that the pools and casks are extremely secure, with enough engineering, steel and concrete, and multiple safety system redundancies to protect against accidents from earthquakes, terrorists and any kind of mayhem that can be imagined.

[Lochbaum of the concerned scientists, also a nuclear engineer, thinks that casks are safer than the pools, but Cowan disputes this, noting the Nuclear Regulatory Commission has found the two storage systems equally safe.]

Nuclear opponent Kraft says the unimaginable has happened in the past, as at the Fukushima nuclear accident in Japan in 2011.

All agree that a central permanent site is needed.

Two counties in Texas and New Mexico have offered to create “centralized *interim* storage sites,” but even these would be decades away from receiving spent fuel.

Clearly, the nuclear power community should have resolved the permanent storage issue decades ago, at the front end of the nuclear power era, before creating all this spent fuel.

I think we should reinstate the moratorium on licensing any new nuclear reactors until a permanent site is approved. Second, interim sites should be established.

In addition, the nation must put even more resources into increasing the efficiency of renewable sources of energy such as wind and solar.

As for the stored nuclear waste in Illinois, I think it is safely secured, but I would feel even better if it were stored permanently elsewhere. But that is decades away.