

Please Release Me . . .

Materials and Site Free-Release Issues

The lack of clearance standards for the free release of materials from a cleanup site—and what licensees can do about it, if anything—was the subject of a Monday afternoon session at the 2000 ANS/ENS International Meeting, held November 12–16 in Washington, D.C.

Paul Genoa, from the Nuclear Energy Institute (NEI), led off the session with a discussion of the basics of the problem. Materials are being released routinely from nuclear licensee sites, both during operation and during decommissioning. Since there are currently no given standards to govern such release, nuclear power plants have one approach (no detectable contamination), while other licensees have other standards. However, he said, without the consistent acceptance criteria that a standard would spell out, public protection is inconsistent, public confidence is undermined, and liability issues are perpetuated.

The solution, he said, is the establishment of a clearance standard with the following elements:

- ▲ Dose based.
- ▲ National (as opposed to individual levels in individual states).
- ▲ Compatible with the International Atomic Energy Agency.
- ▲ Practical.
- ▲ Verifiable.
- ▲ Final.

The challenges, he outlined, include the following:

- ▲ Antinuclear opposition. Clearance is the “devil incarnate” to these groups, he noted.
- ▲ Steel industry opposition. Steel is marketed as a clean, recyclable material. Steel producers are very concerned about the bottom line and want nothing to impair the public’s confidence in the nation’s steel. Antinuclear groups are promising to boycott any steel recycled from nuclear operations, and the steel industry is fearful of this kind of action.
- ▲ U.S. Department of Energy metal policies. First the DOE imposed a moratorium on the recycling of decontaminated metals, and then they suspended such operations entirely. The commercial industry cannot escape DOE policies, Genoa noted.
- ▲ National Academy of Sciences (NAS) study.
- ▲ Compatibility of Agreement States—a health-based stan-

dard ought to be consistent across the states, he repeated.

- ▲ Linkage with the below-regulatory-concern concept.
- ▲ The U.S. Nuclear Regulatory Commission’s stakeholder approach, which could mean that it would be several years before there’s *any* resolution.

The issue is a particularly contentious, polarized, and stalled one, Genoa noted. Perhaps this will change when the NAS has completed its study, he said. The NEI is participating in the NAS study, he assured the session, and is monitoring international developments as well. In addition, NEI is increasing its pressure on the NRC to endorse the American National Standards Institute standard, which represents an industry-wide consensus.

But the real question, Genoa concluded, still rests with the issue of steel recycling. If we can take steel recycling off the table, he suggested, perhaps progress can be made with other materials. Indeed, he said, it may be difficult to ever make the case that metal with detectable contamination levels is suitable for recycling.

Having It Both Ways

The problems that states face was outlined by Michael Mobley, now retired from his former position as director of the Tennessee Radiation Control Agency. He expressed his concern with the DOE, which, he said, won’t release a metal until contamination is not detectable, yet will not define what it considers “not detectable.” The DOE cannot have it both ways, he said, though they always try.

Mobley pointed to the discrepancies between the material release controversy and medical exposures. The current working level for material release is 1 millirem per year of exposure to a hypothetical “most-exposed” person. Yet medical X rays routinely expose a person to between 10 and 100 mrem per procedure, and half of those procedures are probably unnecessary, he said.

Commenting on the nickel recycling program that the DOE had been operating in his state (at Oak Ridge), Mobley said that the company now decontaminating the nickel will complete its work, and then another company will be paid to store the material until the issue is resolved. And, Genoa interjected, taxpayers will pay an additional \$50 million to \$60 million because the DOE will have to make good on the contract, though the nickel itself may never be released.

Big Rock Plans

Kenneth Pallagi, from Consumers Energy's Big Rock Point plant, which is undergoing decommissioning, noted that the company will have some 84.5 million pounds of concrete debris to dispose of. How that material is categorized, he noted, will affect the ultimate disposal cost. Such costs could range from 1 to 10 cents/lb, if it can be disposed of in a landfill, to up to \$10/lb if it must go to Barnwell. That gives a range of between \$84 500 to \$845 million—quite a difference, he said.

Putting the concrete in a landfill, he asserted, is better for everyone—it protects human health and safety, conserves low-level waste space in disposal facilities, and meets NRC requirements, while at the same time saving ratepayer dollars.

The process being employed at Big Rock includes the removal of residual surface radioactivity of concrete structures, if necessary; survey of structures to screening acceptance criteria; demolition; bulk assay of materials, with a determination of accept/reject status; and disposal at an appropriate facility. Pallagi hopes that ultimately up to half of the debris will be considered clean enough to go to a landfill.

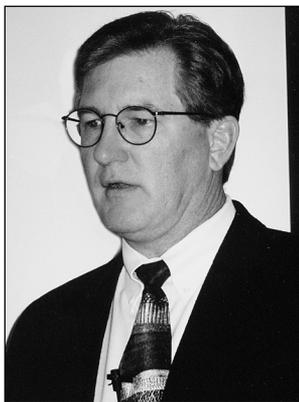
And Michigan Agrees

On the state side, Dave Minnaar, from the Michigan Department of Environmental Quality, noted that his state is a non-Agreement State (and thus is governed by NRC regulations), but, he asserted, non-Agreement States are no less interested in the decommissioning process. Besides, he said, the state is concerned with nonradiological regulatory issues, including the Occupational Safety and Health Administration (OSHA) programs, Resource Conservation and Recovery Act (RCRA) issues, and solid waste programs.

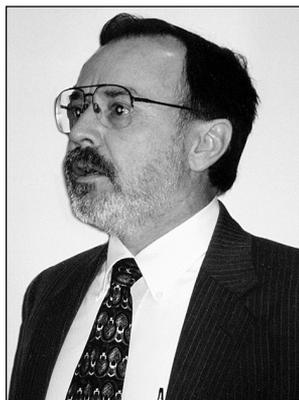
The state must recognize both the plant's concerns (the concerns with timetable, resource and cost restrictions, and waste management issues) as well as public concerns (the need for public assurance and independent verification).

Minnaar agreed with Genoa that more consistency in limits is needed. Right now, he noted, site property must be cleaned up to a 25 mrem/year standard, according to the NRC; to a 25 mrem/year standard, with a separate 4 mrem/year groundwater standard, in some states; and to a 15 mrem/year standard according to the U.S. Environmental Protection Agency. Even the DOE has dose-based number for release, he noted, except for metals. How they can justify that, no one knows, he commented.

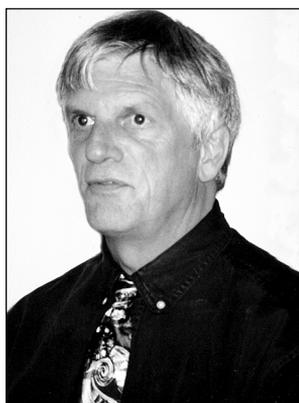
For his part, he said he supports the NRC 25 mrem/year all-pathways limit for free release of site property,



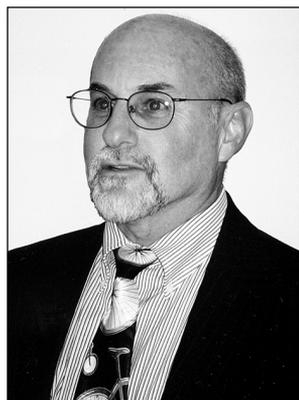
Paul Genoa



Michael Mobley



David Minnaar



Eric Goldin

supports dose-based limits for all other free-released materials, and supports the disposal in waste landfills of all waste with insignificant radiological constituents. And, he noted, this issue is one that involves more than just the nuclear industry. For example, the oil and gas industry has a major concern about radium, he said.

But Maine Doesn't

The state of Maine has different ideas about what it wants to accept in the way of release standards, Paula Craighead, Maine's nuclear safety advisor, reported. In fact, she said, Maine residents would like a zero dose rate. This stems from the fact that Maine views itself as the nation's "tailpipe," Craighead said: Because of national weather patterns, the state has to contend with pollution streaming into the state from the rest of the country. Therefore, it prefers that no additional contamination enter into the state's air, ground, and water. Thus, the state is proposing a 10 mrem/year site release standard, with 4 mrem/year to groundwater. Because of Maine's very strict standards, the decommissioning Maine Yankee plant has had to abandon its rubbleization plans and will instead dispose of its concrete debris offsite.

Maine has also been very involved in Maine Yankee's proposed dry cask spent-fuel storage system. The state demanded, and received, binding assurance from the DOE that it will accept the NAC dual-purpose cask at a final repository. It also obtained DOE agreement that the agency would witness the loading of the Maine Yankee greater-than-Class-C waste into one of the casks. This issue was very low on the DOE's agenda, Craighead noted, and they at first refused to witness the loading to verify the contents, but the state kept pressing the issue until the DOE complied.

The Final Point

Eric Goldin, radiation protection supervisor at Southern California Edison's San Onofre plant, came back to the issue of detectability. What is detectable using lab instrumentation may not be detectable using field instrumentation, he noted. If the release of solids is "instrument-based," what instrument do you use? In addition, he noted, residual contamination exposes licensees to future liability, especially if the release standards remain instrument-based: As better instruments are developed, material that was released as clean could be remeasured and deemed contaminated.

Also, if clearance guidance is applied to license termination, many plants will find themselves underfunded for decommissioning.—Nancy J. Zacha, Editor ■