

Exploring the World of DD&R

Big Issues, Hot Topics, Cost Considerations, and More

The 2000 American Nuclear Society Annual Meeting, held this year in balmy San Diego, attracted some 800 nuclear professionals. Those who followed the sessions sponsored by the ANS Decommissioning, Decontamination, and Reutilization Division found themselves attending a new kind of ANS meeting technical session, with round tables instead of rows of chairs, increased audience participation, and, in some cases, a facilitator to keep things on schedule and on track. It all was designed to transfer the news of the world of D&D more easily to audience members, and in most cases, it really worked. [See Editor's Note, this issue, p. 4, for this editor's take on the meeting format.]

HOT TOPICS

So, what are the big issues and hot topics facing the D&D world today? Monday afternoon's session tried to focus on a myriad of issues, including low-level waste disposal, spent-fuel storage, decommissioning funding, and regulation.

Gary Becker, an attorney with the firm of Day, Becker & Howard LLP, tried to clear up the muddy waters of power plant decommissioning funding . . . and the related tax considerations, in the wake of recent plant sales. Complicated formulas accompany each plant sale, since currently the sums in the decommissioning trust fund generally are not enough to pay for decommissioning. And the tax code allows taxation of the trust fund upon title transfer to a new owner. Most plant sales so far have involved exemptions from the Internal Revenue Service, but such rulings can take time and impede the rapid conclusion of a sale. Legislative relief is a possibility but may also take time.

Another issue in plant sales concerns potential claims on excess decommissioning funds, Becker said. If the final decommissioning costs come in under the amount in the trust fund, who gets the excess—the original seller of the plant? The new plant owner? The ratepayers? The issue is still unresolved and likely to remain so for some time.

For a decommissioning plant, the biggest liability remains the spent fuel, Becker concluded, since the fuel will have to be stored until the U.S. Department of Energy can take possession.

Two views of LLW disposal were presented by representatives of Chem-Nuclear and Envirocare of Utah. George Antonucci, of Chem-Nuclear, explained the new situation at the Barnwell, S.C., disposal site, the only full-service U.S. LLW disposal site currently open to nearly all users. The new Atlantic Compact is now official, he said, and South Carolina's membership would become effective July 1 (or, at the latest, October 1) of this year. Under the new regime, the Barnwell facility will stay open to users until the year 2008, after which it will be available only to members of the Atlantic Compact. But the amount of storage space available to out-of-compact users will diminish each year between now and 2008, descending from 160 000 cubic feet today to 35 000 cubic feet in 2008, and a certain amount of that available space—about 9000 cubic feet per year—will be reserved for compact users. Thus, as the years pass between now and 2008, there will be an increasing scramble for disposal space at the site.

Gene Gleason, from Envirocare, noted, however, that Envirocare has applied for a license to begin disposing of Classes B and C waste at the Utah site, which now accepts only Class A radioactive waste. He said that the state legislature seems supportive of the effort and that the governor, who is on record as being strongly against a possible spent-fuel storage facility in the state, is at least neutral on the topic of the license extension for Envirocare. The amendment process is already four months ahead of schedule, he said, and the company is encouraged by the progress thus far.

How does decommissioning work at DOE sites compare to work at commercial power plant sites? Mark Ferri, who had been working on the Maine Yankee decommissioning project and who now works for Kaiser-Hill at the Rocky Flats Environmental Technology Site, gave a de-

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Work at Envirocare of Utah's low-level waste disposal site. The company has applied for a license amendment to allow it to take Classes B and C waste.

tailed comparison of the scopes of work at the two types of projects. There are more similarities than differences, he concluded, outlining the projects under several categories. For example, he said, in the area of safety, concerns with personnel safety, dose, and operations are similar. The differences lie in the hazards and the unknowns encountered at DOE sites, as well as the possibilities of criticality accidents. In the area of organization and culture, the differences lie in the sheer size and complexity of the DOE cleanup efforts and in the amount of transition time from operations to decommissioning extant at some sites.

The area of contracts is another where the similarities outnumber the differences. Contracting the work at both types of sites involves fixed scopes, multiple subcontracts, and penalties for failure to perform. The differences include the facts that firming the scope of work at DOE sites is more difficult and that the client is also the regulator. Schedules and budgets also include many similarities, he continued, in that with both types of work, you want to do the job safely and fast, while working under fixed funding.

Technology, however, is an area with many more differences than similarities, Ferri said. In actuality, the only similarity is that in both cases you are working at a nuclear facility. Other than that, the differences mount up: The uranium and plutonium waste streams, for instance, are a new world for someone used to the commercial side of the business; security is tighter at DOE sites; the historical record can be somewhat spotty at DOE sites; the dose hazards are primarily alphas at DOE sites, gammas at commercial sites; and, perhaps foremost, the sheer physical size of the DOE sites can be daunting, Ferri said. Still, he concluded, the similarities mean that the same decommissioning strategies can be applied to both types of work.

The U.S. Nuclear Regulatory Commission's Susan Shankman was the fifth member of the panel. Her presentation focused on the efforts the NRC is making to

transform itself into a more "efficient, effective, and realistic" agency—in her case, in the area of spent-fuel storage and disposal. (See "Regulating Dry Cask Storage: A *Radwaste Solutions* Interview with the NRC's Susan Shankman and Randy Hall," this issue, p. 10.)

FREE RELEASE OF SOLID MATERIALS

Two sessions on free release standards for solid materials—or, rather, the lack of free release standards—were on the Tuesday schedule. These solid materials can include concrete building material, scrap metals, and some trash and soil. As Session Chair Mark Lesinski, from Big Rock Point, noted, there are currently no usable standards for free release—that is, recycle and reuse in industry or burial in a common landfill—of such materials. All regulatory actions are being done on a case-by-case basis right now, he said. The NRC's Below Regulatory Concern (BRC) effort failed, he reminded the audience, other efforts are "going nowhere," and the only bright spot right now is ANSI N13.12. [Editor's note: The U.S. industry may see ANSI N13.12 as a bright spot, but Europeans feel decidedly differently. See below for details.]

The free release of solid materials is an important topic for the Big Rock folks, since they are applying for a license amendment to release "clean" material from the site. The material in question, Lesinski noted, while not reactor building material, is not material that has never been dirty; that is, it may have had some contamination at some time. This material will be cleaned of any surface contamination and then shipped offsite to a local landfill. So far, he said, they have had good support from the regulators, although their public outreach effort on the subject is just beginning.

An audience member from the NRC commented that the staff is currently proceeding very cautiously on Big Rock's license amendment application, since the commissioners have instructed the staff to be very cautious in approving new methods. If the license amendment effort fails, the contingency plan is to ship the materials

to an LLW disposal facility.

Al Johnson, from GTS Duratek, described his company's "Green Is Clean" (GIC) program for bulk assay and conditional release of material. He also touched on some of the issues surrounding the GIC or similar programs. *Technical* issues include such items as dose modeling scenarios, assumptions, and criteria; radiation monitoring equipment capabilities; single nuclides versus multiple nuclides; averaging activity concentrations and hot spots; and multiple density and counting geometry calibrations. *Practical* issues include multiple waste streams and generation rates; bulk or volumetric assay versus surface contamination monitoring; and costs of program implementation versus the benefit (savings in radwaste disposal/processing costs). *Political* issues include involvement with the general public, commercial landfill operators, and corporate management's view of the perceived risks and benefits.

Harold Peterson, from the DOE Office of Environmental Guidance in the Office of Environment, Safety, and Health, noted the public and congressional opposition to the release of possibly contaminated material, no matter how small the contamination. One example he noted was the proposed NRC policy statement on BRC materials, which was withdrawn in the wake of negative public reaction.

But he was quite vocal about where the blame for public reaction might lie—with the industry. "We have met the enemy and he is us," he quoted. For instance, he said, all the industry discussion and debate about the linear nonthreshold theory of radiation exposure has increased public apprehension, since now the public thinks the industry doesn't even know how to measure radiation effects. And the various terminology changes the regulators and industry have developed (first it was *de minimis*, then BRC, and now it's "free release," he noted) have not helped public perception, which remains negative.

Eric Goldin, from the San Onofre nuclear generating station, presented a paper written by Paul Genoa, from the Nuclear Energy Institute (NEI). The NEI, working closely with the NRC, has led an effort for development of standards for release of solid materials (similar to the release standards for gases and liquids). The NEI viewpoint is that such release standards are needed; that a rulemaking effort should consider consistency, stability, and transparency; that a dose-based standard is appropriate; and that the recently developed ANSI N13.12 meets the objectives.

Art Desrosiers, from Bartlett Services, gave an overview of ANSI N13.12, which, he said, was not developed as a D&D standard, but as an operating standard (though licensees can request an application for D&D projects). It was developed as a risk-based standard, he said, since that's "fashionable" right now, but it had to take into account what's worked before and what technology could accommodate. The ANS is preparing a policy statement endorsing the standard, he noted.

The afternoon panel session continued the discussion on the topic. Patricia Holahan, from the NRC, noted that the agency is still looking at the issue on a case-by-case basis. The recently published NRC Issues Paper on the topic has received almost 900 comments, expressing stakeholder concerns. The major categories of stakeholders include the metal industry, which opposes free release of metals (for recycling); citizen groups, which first boy-

cotted the process completely and now basically oppose any release of any material, no matter how small the contamination; state agencies, which want a rule they can enforce and want nothing greater than a 1-millirem-per-year release level; and licensees, which want a national standard for guidance. The situation today, she continued, is that the NRC has asked the National Academy of Science (NAS) to study the issue but that the staff will go forward with their own work developing technical bases for the issue. Final rulemaking, however, will be deferred until the completion of the NAS study.

Shankar Menon, from Sweden, noted that the international community is closely following the U.S. efforts. One of the issues the international community is concerned about is the apparent discrimination on the part of regulatory authorities between naturally occurring radiation (even if it is technically enhanced) and artificially produced radiation that occurs on nuclear power plant sites. If authorities tell the

public that artificial radioactivity is 100 times more dangerous than natural radioactivity (based on the numbers in some release standards), no wonder the public is antinuclear, he stated. An audience member commented that often the reason that a rem from a nuclear power plant is considered more dangerous than, say, a rem from radon is that the individual homeowner has to pay to remediate the radon, while "someone else" is deemed to have to pay to remediate the nuclear power plant.

Menon concluded by stating that it is important for industry to continue to "harangue" the regulators to keep the issue alive. He cautioned the industry against embracing the rather restrictive ANSI N13.12, however, noting that if the U.S. industry does embrace it, it will become a world standard.

COSTS

The Wednesday morning session on costs looked at utility, DOE, and even international decommissioning projects.

Mike Lackey, from Portland General Electric's Trojan

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plant, described the utility's DecomExpert cost management software, which is integrated monthly with the Primavera scheduling software to provide immediate cost

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estimates of schedule delays. The largest delay at Trojan is the anticipated three-and-a-half-year delay in loading spent fuel into a dry cask system. The liners in the TranStor canister baskets proved to be defective, and so the TranStor canisters were withdrawn from the licensing process, with resubmittal anticipated in early 2001 and license approval expected in late 2002, Lackey said. Among lessons learned from the experience: Have a backup technology available. Trojan based its general license submittal on the TranStor canisters, and now it wishes it had included other canister types as well. As it is,

Trojan will take a \$38-million hit in operations costs (continuing wet fuel storage) and a \$28-million hit in decommissioning costs because of the delay.

Mike Terrell, from Duke Engineering at Yankee Rowe, updated the cost estimates for that decommissioning project (a \$70-million increase and a schedule delay be-

cause of spent-fuel disposal issues), while Richard Wyniawskyj, from Big Rock Point, reported a \$28.4-million cost increase for that project, which is well within the \$50-million contingency the utility planned.

Steve Tower, from the DOE Rocky Flats Field Office, noted that the department has gained a great deal of information from the decommissioning of Building 779, which he described as "the first plutonium building on the face of the earth to come down." A plutonium building, he stated, is basically a big machine shop and foundry designed to produce a "pit." The Rocky Flats site has some 400 buildings, of these 10 major plutonium and uranium buildings. With Building 779 cleaned up, there are five plutonium buildings remaining to be cleaned and demolished. The major challenge in cleanup of these buildings is the gloveboxes inside.

The DOE uses the Facilities Disposition Cost Model, which uses real cost data from onsite experience, loads that data into a model and extrapolates it for other buildings, and adjusts the data for learning curve factors. Parametric models manipulate the data as needed. It is hard to have much of a learning curve, however, he admitted, because the buildings are all so different.

Luciens Teunckens, from Belgoprocess in Belgium, described the international effort among the International Atomic Energy Agency, the European Commission, and the Organization for Economic Cooperation and Development/Nuclear Energy Agency to develop cost estimating standards for decommissioning. The group issued its interim Technical Document in January 2000 and hopes to have a final standard developed in three years.—*Nancy J. Zacha, Editor* ■