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The Inspector Calls

Inspection Planning, Feedback, and Results on Decommissioning

Nuclear power plants are used to a constant U.S. Nuclear Regulatory Commission presence onsite during operation. But once a plant begins decommissioning, what is the NRC's role and presence? A Thursday morning panel session, featuring three NRC staffers and a regulatory affairs manager from a decommissioning plant, tried to shed some light on the changing face of regulation once a plan is shut down and into decommissioning.

Paul Harris, the NRC's project manager for the Big Rock Point Restoration Project, noted that until recently, the NRC had two separate inspection systems for decommissioning plants, one conducted by the Office of Nuclear Reactor Regulation (NRR) and the other conducted by the Office of Nuclear Materials Safety and Safeguards (NMSS). Now, however, with the new *Inspection Manual* Chapter 2561, the two offices have combined their programs. The NRC hopes to improve its consistency with this new procedure.

But the new program does not parallel operating reactor inspection, Harris said. For example, the inspection program for decommissioning plants uses "risk insights" but is not "risk informed" (given, he said, the public perception that *any* release of radioactivity is unacceptable).

Also, Harris said, the decommissioning plant inspection program does not use as many NRC resources as does operating reactor inspection. The latter program has a staff of more than 300 people, he noted, while the inspection program for decommissioning reactors has a staff of "6 or 7 in the regions, plus 14 project managers," representing a significant reduction in manpower. Given the reduction in staff levels, Harris said, the NRC must balance "process" inspections with "safety" inspections.

From a safety standpoint, the transitional phases of a decommissioning program are the most important—that is, as a plant completes one phase and moves into another. Major safety focuses include the removal of the reactor vessel internals and the steam generators, containment modifications, and the handling of greater-than-Class-C (GTCC) waste. Also of importance are partial site release, chemical cleaning, and any activities related to an independent spent-fuel storage installation (ISFSI). In these areas, Harris, said, preactivity inspections, conducted before a job is done, can contribute significantly to the assurance of safety—providing "more bang for the buck." In general, he noted, the more the NRC program manager knows about the site, the better the program and the better the progress.

Additional work ahead included updating the inspection manual, especially those sections dealing with the spent-fuel pool and with rulemaking. The enforcement manual needs updating as well, he added.

In concluding, Harris stated that while the NRC inspection program is protective of public health and safety, its goals could not be concluded without good licensee performance, and he praised the performance at current decommissioning plants, with their records of no significant releases, no significant personnel injuries, no significant events or accidents, and no overexposures.

Marie Miller, a senior health physicist in the Decommissioning and Laboratory Branch at the NRC's Region I, described regional efforts in decommissioning inspection. The inspectors' abilities to do good work in this area have been perfected with outage inspections, she noted. In fact, she said, there are many similarities between decommissioning plants and plants in outage mode, include the fact that during both these stages, while the risks to offsite populations decrease, onsite risks remain. Both during outages and during decommissioning, a plant must continuously manage nonroutine work, must deal with constant staff changes and turnover, and must be

aware of increased public concern and oversight.

But there are also significant differences between these two, she pointed out, including the fact that outage activities tend to be repeat activities, while decommissioning activities are first-time, often one-of-a-kind, actions. Keeping exposures as low as reasonably achievable (ALARA) is probably the most challenging task during either activity, she noted, and ALARA preplanning is very important, especially in light of the "phenomenal" number of curies that must be handled during decommissioning. Good communication between work groups is often a key to good ALARA planning, she said. As an example, she noted a pipe segmentation operation at a plant where workers discovered after the pipes had been cut that they did not have the means to move the pipes in their new configuration.

Some findings and lessons learned from Region I inspections of decommissioning plants included the following:

▲ Plants displayed good performance related to spent-fuel storage.

▲ Some procedural violations were uncovered, including several examples of failure to perform an adequate evaluation before proceeding with a task.

▲ Planning performance for more routine dismantlement was found to be less than thorough in many areas.

Despite these concerns, she echoed Harris's praise of licensees, noting that Region I has recorded no significant radiological safety issues, no unplanned exposures and no overexposures, and only slight personnel contamination incidents but with no significant intakes. There have been, however, some "close calls" with industrial safety, but overall, "licensees are doing a very good job," she concluded.

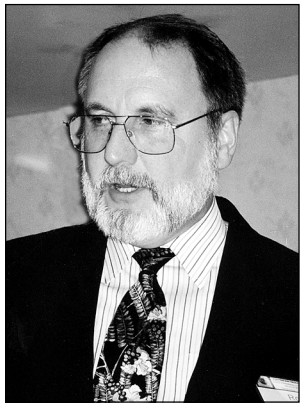
One aspect of inspection of decommissioning plants Miller noted was that as the NRC becomes less involved in inspection efforts, state and local agencies are stepping up their efforts to oversee decommissioning work. This phenomenon was covered in the presentation made by George Zinke, regulatory affairs manager at Maine Yankee. Maine is especially active in this area, and has increased the number of state resident inspectors at the plant from one to two since the plant began decommissioning activities.

Zinke noted that the increased focus the state is giving the plant is increasing public concern about the decommissioning process. The public hears about "the increased risks in decommissioning," he stated, without realizing that the risks are all *onsite* (that is, to the workers), not *offsite* (that is, to the public). Consequently, the public is putting on pressure for even more state involvement.

Zinke also expressed concern about the current regulations in place for decommissioning plants and about "new, undefined, and changing" requirements and expectations. "No plant has made it all the way through decommissioning under the current rules," he noted, and so we have no way of knowing if it is even possible.

Paul Harris

Marie Miller



Robert Nelson

The final panelist, Robert Nelson, from NRC headquarters, dealt with some of the current unresolved issues facing decommissioning plants, including site-specific dose modeling (the NRC has published some guidance, he said, but it will never "get easy"); implementing restricted release; efficiency and effectiveness of reviews; adequacy of financial assurance (not a problem for utilities, but often a problem with materials licensees); and inconsistent approaches by federal agencies (e.g., the NRC and the U.S. Environmental Protection Agency).

Some guidance and lessons learned he offered included the following:

▲ Early and frequent consultations between licensees and regulators are needed (even before the decommissioning plan is submitted).

▲ Operational environmental monitoring of groundwater may be inadequate for site characterization.

▲ Design of the final survey must involve the applications of appropriate data quality objectives ("you have to know where you're going before you design the survey").

▲ In-process inspections are more efficient than a one-time confirmation survey.

▲ A clear relationship is needed between the planned decommissioning activities and the associated cost estimate (often, he said, there is no clear link between the two, and both should be broken down to similar levels of detail).

▲ Old records are often inadequate or inaccurate ("look with a jaundiced eye at old records").

▲ Environmental impact reviews need to address nonradiological (i.e., archeological, historical, etc.) impacts. (The NRC has to find the information if it's not in the license termination plan or in the decommissioning plan, and this will take extra time, he cautioned.)

During the discussion sessions following formal presentations, the issue of the final disposition of GTCC came up. Zinke noted that Maine Yankee plans to cut the GTCC from the reactor vessel, put it in a spent-fuel storage cask, and store it at the ISFSI along with the spent fuel, hoping that when a final repository is available, the U.S. Department of Energy will take it along with the fuel. One speaker noted, however, that the DOE has a difference of opinion on whether it is supposed to take GTCC, and the final disposition of this material remains an unresolved issue, causing additional utility concern.—*Nancy J. Zacha, Editor* ■