

Getting It Right



New Hampshire's Seabrook station. The unfinished Unit 2 containment shell is shown at the far left.

New Hampshire's State-of-the-Art Nuclear Decommissioning Law

By Bruce J. Musico
and Harold T. Judd

In the late 1970s through the mid-1980s, the Seabrook nuclear power station was the poster child for the antinuclear movement in the country. With the advent of deregulation of the electric power industry and the pending transition of Seabrook to a merchant plant, the state of New Hampshire recognized the need to rewrite its dated nuclear decommissioning law. To provide a comprehensive framework within which the Seabrook reactor could be sold, decommissioned, and the site ultimately restored, the state tackled the most significant and vexatious issues facing the nuclear industry.

Of the numerous contemporary issues addressed in the new law—some of which are still unsettled within the nuclear industry—the following were the most significant:

- *The U.S. Nuclear Regulatory Commission as opposed to the U.S. Environmental Protection Agency:* The NRC's "unrestricted use" radiological cleanup standard was chosen over the more restrictive EPA standard.
- *Green Field:* Restoring the site to its pristine preconstruction state was replaced

with a more realistic commercial/industrial site restoration expectation.

- *Regulatory Certainty:* By including all interest groups, a structure was crafted for maximum certainty of present and future state requirements and oversight.

NUCLEAR PROTESTS AND ARRESTS

With the advent of deregulation of the electric power industry and the pending transition of Seabrook to a merchant plant, the state of New Hampshire recognized the need to rewrite its dated nuclear decommissioning law. In the process, the state tackled some of the most significant and vexatious issues facing the nuclear industry.

During Seabrook's construction and licensing it was plagued with an onslaught of antinuclear attacks from seasoned adversaries—both in the courts and in the streets. Pictures of demonstrators climbing the site fence and being arrested made for prime-time news coverage. Seabrook survived the attacks and received its operating license in October 1986. Along the way, commercial operation was delayed until August 1990, and one of the two reactors was canceled. Complementing New Hampshire's pristine 17-mile seacoast is a constant reminder of the battle: the giant rusting steel and rebar hulk of the unfinished Unit 2 containment shell. Today, the host community is torn between discontent with the appearance of Unit 2 and the tax benefits of Unit 1. This,

too, had to be considered when looking ahead to Seabrook's becoming a merchant plant.

Before Seabrook was operating, the New Hampshire legislature prudently put in place a nuclear decommissioning statute.* Because New Hampshire acted before the NRC had comprehensive decommissioning financing requirements in place, the state viewed decommissioning with three goals:

1. Protecting the health and safety of citizens.
2. Returning the site to a marshland condition.
3. Including the cost of decommissioning as a charge against all electricity sold from the plant.

Not surprising, the statute did not anticipate an end to the vertically integrated electric utility industry.

TWENTY YEARS LATER

On July 6, 2001, New Hampshire Governor Jeanne Shaheen signed into law House Bill 740, which is a completely revised nuclear decommissioning law. Of the 31 active nuclear states, New Hampshire now has, by far, the most advanced nuclear decommissioning law in the country. The law is unique for another reason—virtually all interest groups participated in the drafting process. This diverse group included joint owners, regulators, local officials, state officials, and antinuclear organizations.

Where the original law was drafted looking forward from the 1970s, the new statute benefited from the experience of a mature nuclear power industry. While providing absolute financial protection for the state, the law addresses every significant legal and technical issue associated with nuclear decommissioning. In addition, it provides regulatory certainty to bidders for the 88 percent of Seabrook that is expected to be sold before 2003. The new law was drafted for the New Hampshire legislature by the authors of this article, Harold Judd (an energy

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attorney) and Bruce Musico (an attorney and nuclear engineer).

House Bill 740 addressed the issue of site restoration and adopted the NRC's radiation protection standards for site cleanup, including providing for subsequent site use under a commercial/industrial standard, as opposed to a "green-field" cleanup. The town of Seabrook was a party to the bill's development and retains a role in determining the ultimate use of the site following decommissioning. This approach allows for both the maximization of value

and flexibility of development. Also, this approach provides a high level of certainty that the site will be developed and have a long commercial life. This certainty is expected to maximize the sale price of the station. In turn, this will reduce stranded costs for consumers under New Hampshire's utility restructuring plan. From the perspective of the town, the long-term tax base of the site is assured. Additional key aspects of HB 740 include the following:

- Providing a new definition of *decommissioning* consistent with that of the NRC and reflective of state requirements. Of particular note is the adoption of the NRC's unrestricted use radiological cleanup standard, i.e., 25 millirem per year and as low as reasonably achievable (ALARA).
- Requiring adequate decommissioning funding assurance, including a fund "topoff" to the NRC's 10 CFR § 50.75 minimum amount prior to the sale of the plant.
- Requiring continual state oversight and review of decommissioning funding,

including requiring state approval of funding assurances prior to the sale of the plant.

- Explicitly stating that the state has no financial responsibility for site decommissioning, including state-required site restoration beyond that required by the NRC and also in the event of a premature shutdown of Seabrook.

- Providing for the reduction of "stranded costs" and the determination and refund of any excess moneys to both the public and plant owners following completion of all decommissioning.

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*New Hampshire RSA 162-F, Decommissioning of Nuclear Electric Generating Facilities.

NRC VERSUS EPA

Of particular significance was New Hampshire's decision to adopt the NRC's unrestricted use standard over the EPA's slightly more restrictive standard. The NRC's 25 mrem/yr (above background) limit is based on a top-down dose-based radiation protection approach and utilizes an ALARA cost-benefit analysis.

In contrast, the EPA's 15 mrem/yr (with a 4 mrem/yr groundwater component) uses a bottom-up risk-based radiation protection approach, which sets an acceptable range of risk of an individual getting cancer of between 1 chance in 10 000 and 1 chance in a million. In addition, the EPA hypothesizes extremely unlikely scenarios and requires consideration of, for example, the exposure to a farmer who settles in with his family on the former nuclear site, who ingest all of their food from the land and their water from under the site. Construction of a dog track or casino on the decommissioned Seabrook site is more likely than the EPA's what-ifs.

New Hampshire recognized that the differences between the NRC and EPA were political in nature, and that the EPA's standard might result in substantial, unnecessary additional decommissioning costs, having no realistic benefit. Further, the unlikelihood of residual contamination exceeding the EPA limits, following application of the ALARA requirement, further supported the NRC standard. In addition, considering the problems that the state of Maine is currently facing after adopting the EPA standard, a more reasoned decision was made in New Hampshire. Maine had requested EPA assistance in determining an appropriate cleanup standard for the Maine Yankee site. Apparently, the EPA did not recommend the NRC's standard.

The extremely small levels of potential exposures were considered in their relationship to allowable whole-body doses for radiation workers (i.e., 5000 mrem/yr) and real natural background exposures (N.H. and U.S. averages are about 70 to 80 and 360 mrem/yr, respectively). In comparison, the difference between the NRC and the EPA standards is only a remote and unlikely hypothetical of 10 mrem/yr.

SITE RESTORATION

In the past five years alone, the nuclear industry has experienced a significant evolution. In the 1990s, some nuclear plants were closing, while others were sold at fire sale valuations. The outlook for the industry has changed. Today, nuclear stations are selling for more than \$500 per kilowatt, operating licenses are being extended for 20 years, and the average capacity factor for nuclear plants exceeds that of many fossil plants.

With this comes a new appreciation by host communities. A few years ago, local officials were faced with an end to local tax revenues and years of being host to a plant with a negative value. Today, they see years of continued operation, with an alternative future productive use of the site. Accordingly, decommissioning laws need to recognize a realistic future use for some of the existing infrastructures at a nuclear facility. In the case of Seabrook, it is believed that the most likely use of the

site following decommissioning would be a commercial utilization, such as construction of a gas-fired power plant.

Thus, the new law changed the existing green-field cleanup requirement to a commercial/industrial site restoration standard. This included an explicit mandate to provide the local community of Seabrook, N.H., with a voice in the ultimate fate of the decommissioned site. Recognizing the importance of the economic development of the region was also made a requirement in site restoration. This further supported the adoption of the NRC's radiation standard as part of a redevelopment compact with the local community.

WHAT LIES AHEAD?

New Hampshire's new law is, indeed, the most comprehensive state law today dealing with nuclear decommissioning. It accommodates past events, including the bankruptcy of Public Service Co. of New Hampshire and the subsequent resolution of stranded costs by the New Hampshire Public Utilities Commission. It deals with current issues of providing for the sale of Seabrook station within a deregulated market, made up of both regulated and nonregulated entities. And it looks to the future, in that it puts in place a flexible structure, within which all possible future issues associated with Seabrook can be effectively and fairly dealt with.

Of the many important issues facing Seabrook station and the state of New Hampshire, the most likely to surface as hot buttons in the future are the following:

- Disposition of Seabrook's spent nuclear fuel and greater-than-Class-C radioactive wastes, as it relates to the U.S. Department of Energy's Yucca Mountain, Nev., repository.
- Resolution of the low-level radioactive waste issue, in relation to establishment of shallow burial sites within regional compacts, including the continued availability of existing or new waste sites.
- Resolution of the policy differences between the NRC and the EPA regarding site radiological cleanup standards, with an eye toward EPA Superfund authority.
- Subsequent use of the Seabrook station site following decommissioning.

Any outcome of these, or any other issues, is covered under New Hampshire's new decommissioning law. While no one can predict the future with 100 percent accuracy, it is only prudent for the state to provide a comprehensive framework within which any credible future event affecting the state's interests can be effectively dealt with. ■

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