



Plant sites shown on this map are involved in news stories in this section. Light type on a dark background indicates an existing plant; dark type on a light background indicates a licensing project.

## FUKUSHIMA AFTERMATH

# NRC issues first lessons-learned orders

ON MARCH 9, the Nuclear Regulatory Commission directed its staff to issue to power reactor licensees three orders and a request for information (RFI) for the purposes of addressing perceived vulnerabilities that came to light because of the Fukushima Daiichi accident in Japan on March 11, 2011, and of determining whether other vulnerabilities exist. In the course of developing their consensus, the commissioners changed some of the text in the staff's version of the orders, which were to become effective immediately upon issuance to licensees.

The orders call for the protection from external events (such as severe weather) of equipment kept in reserve to cope with the loss of large areas of a plant to fires or explosions, the installation of enhanced equipment to monitor water levels in spent fuel pools, and, for boiling water reactors with Mark I and Mark II containments, the installation of hardened venting systems or the improvement of existing systems. Licensees are required to be in full compliance with the terms of the orders by the end of 2016.

To comply with the RFIs, licensees must reanalyze their plants' seismic and flooding risks, conduct earthquake and flooding risk

*Just before the first anniversary of the Fukushima Daiichi accident, the Nuclear Regulatory Commission approved the first actions to be taken at U.S. power reactors in response to the accident.*

walkdowns to determine whether a plant's systems and equipment can meet current requirements, assess the plant staffing levels needed to fill emergency positions in response to events simultaneously affecting all reactors at a given site, and determine whether current communication systems and equipment can function during a prolonged station blackout.

The issues addressed in the orders and RFIs are generally the ones that have emerged over the past several months as the most likely to be acted upon first by the NRC. The agency's Near-Term Task Force (NTTF) report, issued last July on lessons learned from Fukushima Daiichi, proposed 35 actions within 12 general recommendations, and since then (through requests from the commissioners), the NRC staff has taken input from the public, set priorities (placing the various NTTF actions into three tiers), and worked out specific language.

The orders and RFIs issued on March 9 are essentially those forecast by the staff in January as intended to be issued on or before the one-year anniversary of the accident (*NN*, Feb. 2012, p. 18).

On February 17, the staff submitted the orders and RFIs to the commissioners, who, through their voting process, eventually agreed on the changes. A public affirmation session of the commissioners' votes was not held, although their individual vote papers were made public prior to the March 9 announcement.

In general, the changes from the staff's version relate to the definition of "adequate protection," which has arisen at times since the NTTF report. In the orders on protecting reserve equipment from external events (originally added after September 11, 2001, as a defense against terrorist attacks) and on Mark I and II venting, the commissioners replaced a staff statement on "a need to re-

define the level of protection” to a statement that “these measures are necessary to ensure adequate protection.” In the order on spent fuel pool instrumentation, the commissioners’ language refers to it as providing “enhanced protection.”

In the first two cases, keeping the orders in the context of adequate protection qualifies them for exceptions to the backfit rule, which places restrictions on an agency’s ability to add regulatory requirements. In the third case, the order is given an administrative exemption to the backfit rule. The NRC was directed by Congress, through the language of the fiscal year 2012 budget enacted in December, to move expeditiously on the Tier 1 NTTF actions. The backfit rule exemption is thus justified in part by the NRC’s effort to follow congressional intent.

The Mark I and II containment orders apply only to certain operable BWRs and not to any reactors that might come later. The other two orders apply as written both to reactors now in operation and to active reactor projects with construction permits (the Tennessee Valley Authority’s Watts Bar-2 and Bellefonte-1—and, if TVA revives it, Bellefonte-2). The language is more limited for new reactors that are near or past the point of issuance of combined construction and operating licenses (Southern Nuclear Operating Company’s Vogtle-3 and -4 and SCANA/Santee Cooper’s Summer-2 and -3), because those projects are based on Westinghouse’s AP1000 reactor design, which, among other things, allows for at least 72 hours of safe cooldown even in the event of a station blackout.

On the industry side, the Nuclear Energy Institute has been working on ways for licensees to comply with the NRC directives. On March 9, NEI released a draft of its guidance on flooding walkdowns for the NRC’s review. At that time, NEI had not yet finished an appendix on the training of walkdown personnel.—*E. Michael Blake*