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NRC Issues Second-Most Severe Finding for Safety Violation to FirstEnergy, Operator of Davis-Besse Nuclear Power Station

Agency Cites Operator's Failure to Address Serious Problems with Emergency Cooling System that Would Have Exacerbated Accident Effects

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The almost accidental discovery of a gaping hole in the nuclear reactor vessel head at the Davis-Besse nuclear power station near Toledo, Ohio—which left less than three-eighths of an inch of bulging stainless steel covering the reactor core—was extremely disconcerting, as the breach of the reactor head could have resulted in a catastrophic nuclear accident. Equally unsettling is the recent finding by the U.S. Nuclear Regulatory Commission (NRC) that the emergency cooling systems in place at Davis-Besse to mitigate the effects of such an accident had serious defects and might not have operated properly had they been required. We know now that their proper operation would have been crucial to limit the damage from the narrowly-averted breach of the reactor core.

On July 30, 2003, the NRC issued to the FirstEnergy Nuclear Operating Company (FENOC) an "integrated inspection report" that included a preliminary "yellow" finding, representing a problem of "substantial safety significance" (second only to a "red" finding of "high" safety significance on the NRC's color-coded scale) regarding the reactor's emergency core cooling system. (The discovery of severe reactor head degradation in the spring of 2002 elicited a "red" safety violation from the NRC.) The NRC's investigation found that the screen of the containment sump—essential to the circulation of water throughout the reactor—was vulnerable to clogging from improper coating material (bad paint) on the interior of the reactor's containment unit as well as fibrous material and other debris. Such clogging would impede the crucial circulation of water necessary to prevent or minimize a release of radioactivity caused by a loss-of-coolant accident.

The NRC's preliminary report found that the "licensee [FENOC] failed to adequately implement design control measures" despite having obtained information on at least two occasions prior to notifying the NRC of the problem in a Licensee Event Report (LER) on November 4, 2002. The NRC notes in its report that the cooling system deficiency has existed since the facility began operation in 1977, and it cites two instances that "should have alerted [FENOC] to the problem": (1) a 1976 letter from the reactor's designer alerting operators that it could not assure the safety of particular "unqualified" paint coatings that were used at Davis-Besse; and (2) FENOC's 1998 request for information regarding emergency cooling system problems and their subsequent Condition Reports addressing precisely this issue. FENOC knew that this was a serious problem but failed to act to correct it, and the NRC neglected enforcement of the operator's proper maintenance of the facility. However, unjustly, FENOC will probably escape greater punitive action for this safety violation because the NRC says it does not present an "immediate safety concern" since the reactor is not currently operating.

The NRC finding is significant because it highlights both the gross negligence of FENOC to address serious safety hazards at its Davis-Besse nuclear power station and the NRC's failure to oversee and enforce the licensee's proper maintenance of critical components of its nuclear reactor. Furthermore, it is alarming to learn that the integrity of Davis-Besse's emergency cooling systems might have been seriously compromised in the event of an accident, since we know how close that facility came to disaster. How many more such startling revelations will it take before the NRC realizes the folly of restarting this troubled, degraded, mismanaged reactor?

And how many of the nation's 103 nuclear reactors—68 of which have the same design as Davis-Besse—are in similar condition, unbeknownst to their operators or the NRC? Instead of the nuclear industry's much-ballyhooed "defense in depth"—the notion that if one thing goes wrong there are emergency systems in place to prevent a disaster—what we are discovering at Davis-Besse is more like "danger in depth": the more we learn, the more frightening it gets.