

**REMARKS BY
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FOR THE PANEL ON POST TMI-IMPROVEMENTS
25TH ANNIVERSARY TMI-2 ACCIDENT PRESENTATION
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NRC AUDITORIUM**

Thank you, Sam, for your historian's perspective on the accident. Now we turn to the second part of our program in which the Commission and NRC's Executive Director for Operations will discuss the accident aftermath in terms of regulatory improvements in specific areas. As luck would have it, I get to go first, and I have chosen two aspects of the NRC's improvement program to discuss briefly with you - - safety management and emergency preparedness.

Among the important revelations of the TMI-2 accident investigations, including the Rogovin and Kemeny reports, were a set of related issues: a widespread complacency about the safety of plant operations, the absence of serious attention to human factors, personnel who were trained and oriented toward handling routine operational events but woefully ill prepared to respond to accident conditions, and isolation of top management from the details of day-to-day organizational activities, including safety-related activities. Taken together, these issues pointed to what was then called human factors considerations, but today we call them the absence of a well developed organizational safety culture or safety management. These observations about human factors were applied to both the NRC and the industry.

The NRC took several steps to address safety management concerns within the NRC and within the nuclear industry. Soon after the accident, the agency created the Office of Analysis and Evaluation of Operating Data to provide the agency better information about plant safety performance trends and identify accident precursors. It also implemented management changes contained in Reorganization Plan No.1 of 1980 which sought to define more clearly the role of the Chairman, particularly during emergencies. NRC also sought to consolidate its more than 11 headquarters sites in the Washington Metropolitan Area to bring the Commission and NRC staff into a single location, an outcome finally realized in 1988 when the Commission moved from its Washington D.C. Office to the White Flint Complex. At the same time, it conducted a comprehensive review of its safety requirements and enhanced its emphasis on human factors, and the use of simulators in its own training programs and by utility management in their training exercises. The NRC also focused some attention to safety management by licensees at individual plant sites, but recognized that it had no particular expertise in this field and that the responsibility for plant management, and therefore improved safety management, had to rest in the hands of the industry itself.

Industry, shortly after the accident, created INPO, which represented a pooling of industry expertise in a single organization with industry-wide authority. INPO was to establish benchmarks for excellence in the management and operation of nuclear power plants and to conduct independent evaluations to determine that the

benchmarks were being met, among other things. INPO became a primary mechanism for improving safety management in the industry and is still going strong today.

Extended shutdowns at nuclear plants, such as Maine Yankee and Millstone in the 1990's, then D.C. Cook, and later Davis Besse in 2002, periodically raise NRC and industry concerns about whether organizational cultures with a strong sense of safety management have been successfully maintained.

In a recent address to INPO, I outlined my views on the importance of “safety management,” a term which I prefer to “safety culture” because of its greater specificity. In my view, safety management embodies the desire to do things right, a questioning attitude, a willingness to learn, and the awareness of how indispensable safety is, and it consists of three interactive elements:

- a functional and executable commitment to operational, maintenance, and engineering safety embedded in every activity of the organization;**
- a technical expertise that is applied where and when it should be; able to receive, process, form, and communicate technical issues, cognizant of safety functions and safety systems, with licensing and regulation as boundary conditions but taken beyond them**

by the pursuit of safety and reliability; and

- the people, programs, and processes to implement a safety program effectively.**

Safety management remains the ultimate responsibility of licensees. The NRC is keenly interested in the results licensees achieve in this area, and NRC's role is to help the industry "sharpen the edge" on safety management. It is a task that requires continuing vigilance now and in the future.

With respect to emergency preparedness, the TMI accident brought increased attention to deficiencies in planning for nuclear accidents when the State of Pennsylvania had to scramble as the TMI accident was taking place to create an emergency evacuation plan for citizens living outside a five-mile zone surrounding the plant in the event a general evacuation was ordered. Prior to TMI, the NRC, like its predecessor agency, had relied on siting requirements and a small 2-3 mile exclusion zone to protect the public. However, during the late 1970's, questions were beginning to be asked about emergency planning -- an NRC-EPA task force in 1978 had recommended the creation of an emergency planning zone consisting of a plume exposure pathway of about 10 miles from the plant and ingestion exposure pathways of a radius of 50 miles. Shortly thereafter, during the midst of the TMI crisis, the GAO issued a report calling for improvements in emergency planning. After the accident, Congress

focused very critical attention on emergency preparedness in May 1979, conducted hearings for three days, and in an amendment added to NRC's FY 1980 authorization bill, mandated stricter emergency planning requirements. By August 1980, the NRC issued a final rule on emergency planning that included the emergency planning zone concept enunciated by the 1978 NRC EPA task force. The rule also stipulated that NRC would not issue a new operating license without a satisfactory emergency plan and that existing plants had to develop an adequate plan by April 1981. The NRC would base its decision on the adequacy of these plans based on the findings of FEMA, which had been created in 1978.

New emphasis on emergency preparedness has naturally arisen following the events of September 11, 2001. This has brought to our attention the need to integrate emergency preparedness with safety and security as part of our defense-in-depth approach. To this end we have created a new project office in NRR to consolidate emergency preparedness activities and to increase management attention in this area.

One more word for focusing on the value of emergency preparedness. EP is done as a necessary and sufficient component of the NRC and our licensee activities to ensure adequate protection from radiological hazards. It is related to reactor safety and security by anchoring them at the vital interface of the public, body and mind. It is also, today, an indispensable component of our obligation to

earn, and hopefully, to ensure, public confidence in the discharge of our mandate.

Both safety management and emergency preparedness represent areas that were addressed in the post TMI-environment and require the licensees' management and our attention. Both have been event driven, but should not have been. They are inextricably linked to the use of nuclear energy and to nuclear regulation in more than one way. Safety is and will be our vision, our goal, and the sum total of our objectives.

Now I would like to turn to Commissioner McGaffigan for his perspectives on the post-TMI regulatory environment.