

Ottawa County Radiological Emergency Response Plan overview

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Nuclear power is an unforgiving technology. A substantial radioactive release from a nuclear power plant, whether from an accident or terrorist action, could be lethal for the plant's neighbors and could cause irreversible damage to human health, property, and food and water supplies.

A new context for emergency planning for Davis-Besse

Recent events -- the 9/11 terrorist attacks and the near-miss accident at the Davis-Besse nuclear power plant -- have raised the stakes for emergency planning. Based on these two incidents, Ohio residents have much more to worry about with regards to nuclear power plant radioactive releases. Both the likelihood of a nuclear release and the magnitude of such a release may now be far greater than government officials originally anticipated in developing the emergency plan for Davis-Besse.

Ottawa County's emergency response plan appears to assume a relatively slow radiological release, allowing time for --

- *the utility to contact local, state and federal officials;*
- *government officials to review monitoring data, make a decision for how best to protect the community, activate emergency response personnel, alert people of the danger and instruct them on what action to take;*
- *members of the community to receive the warnings, make decisions on how best to respond and take appropriate action.*

In reality, if there were a rupture in the reactor (as might have occurred if the hole in the reactor head had not been discovered) or a successful terrorist attack at Davis-Besse, there would be very little time to evaluate the radiological release, decide on appropriate protective action, warn the community, and expect people to respond accordingly. Instead, there could be chaos.

It is this type of release scenario - an unanticipated, massive equipment failure, or successful terrorist attack resulting in the rapid release of a large amount of radioactive contamination -- that now needs to be the basis for emergency response planning. Looking at the Ottawa County Radiological Emergency Response Plan in this light raises questions about the adequacy of the plan in responding to a fast breaking release.

Lessons from two emergency plan reviews

In August, 2002, New York Governor George Pataki commissioned a study to analyze the emergency response plan for Westchester County, New York, home to Indian Point nuclear power plant. James Lee Witt, a private consultant and former director of the Federal Emergency Management Agency, conducted the study and released preliminary findings in January, 2003.

While the population density and geography of Ohio and New York are distinctly different, a number of the issues focused on in the Witt report raise concerns in the Ottawa County emergency response plan.

Major findings of the Witt report (from the executive summary) include --

- 1. "The plans are built on compliance with regulations, rather than a strategy that leads to structures and systems to protect from radiation exposure".*
- 2. "The plans appear based on the premise that people will comply with official government directions rather than acting in accordance with what they perceive to be their best interests."*
- 3. "The plans do not consider the possible additional ramifications of a terrorist caused release."*
- 4. "The plans do not consider the reality and impacts of spontaneous evacuation."*
- 5. "Response exercises designed to test the plans are of limited use in identifying inadequacies and improving subsequent responses."*

In 1986, after the Chernobyl nuclear accident and after an earthquake epicentered just 10-miles from Perry, Governor Richard Celeste ordered a review of the Davis-Besse and Perry emergency response plans. That report also raises issues that are still of concern: "the current emergency response plan for Ohio's nuclear power plants is inadequate to protect the public and that the premise for planning may be based on unduly optimistic assumptions about the likelihood and consequences of nuclear accidents." (page 3)

We have used these two emergency plan critiques to highlight parts of the Davis-Besse plan that need to be re-evaluated in light of heightened concern about the increased likelihood and magnitude of a major radiological incident. The 9/11 attack has horribly revealed the vulnerability of our infrastructure to massive breach. The hole in the reactor head at Davis-Besse shows that we cannot count on the safety system and safety culture of FirstEnergy nor on safety-first oversight by the Nuclear Regulatory Commission.

Elements of the Ottawa County Radiological Emergency Plan that should be re-evaluated

1. Preparing for varying release scenarios

The Ottawa county plan seems to be based on a slow radioactive release and does not anticipate a fast breaking release scenario. Both the 1986 Ottawa County Report and the 2003 Witt Report note the lack of planning for a catastrophic meltdown. The Witt Report also points out the lack of planning and exercises for a terrorist attack and the need for a clear strategy for determining the best protective action under various release scenarios:

"The exercise system should include a number of accident scenarios, including fast-breaking events that occur with little or no warning. These scenarios should be selected for their ability to test varying concepts for protecting people. A broader part of the community, including those publicly skeptical of the plans, needs to be involved in the development of the exercises as well as be able to participate and observe the exercises." (page x)

2. Advanced public education about emergency response plan

People who might be affected by a nuclear power plant accident must know what to expect in an emergency and what is expected of them. Ottawa County educates its residents by distributing brochures, informational calendars, and placing inserts in the telephone book. The Witt Report notes "some of the commonly used mechanisms to educate the public (brochures, calendars, and inserts in telephone books) are not effective when used in isolation, rather than as part of a comprehensive approach to community education." (page 211) Furthermore, the report notes the need for some mechanism to gauge the degree to which the public is absorbing and understanding the information.

The 1986 Ottawa County Report stated that, at that time, citizens were unfamiliar with the plan, and the quality of information and method of dissemination was inadequate.

3. Realistic expectations of public behavior in an emergency

Emergency response plans should prepare, not for how the planners want people to behave, but for how people are actually likely to react in the emotionally intense atmosphere of a major release. Both the Ottawa County plan and the plan for Indian Point assume that individuals in or near the evacuation area understand and will follow the plan.

This type of preparation treats people as a predictable, emotionless mass. The plan does not prepare for people's reactions that may not follow emergency evacuation recommendations. The Witt Report points out that having realistic expectations of people's behavior will provide for a quicker, safer emergency response. For example, "School plans demonstrated at the Indian Point exercise include the concept of evacuating children from the region before parents are notified. Researchers have documented the fallacy of such an approach: parents will attempt to go to schools as soon as word reaches them of a significant emergency. Such actions may hinder the evacuation of most children, raise the level of congestion on roads, and lengthen evacuation times." (page 215)

In addition, emergency planning should prepare for shadow evacuations, which is a circumstance in which people, who live outside the recommended or required evacuation zones flee their homes. This happened after the accident at Three Mile Island: "If only the persons advised to evacuate had left the area, the number of evacuees would have been limited to approximately 2,500 preschool children and pregnant women. Instead, an estimated 144,000 persons, or 39 percent of the population, evacuated their homes in the area as far as fifteen miles from the plant." (page 7, *Evacuation from a Nuclear Technological Disaster*, Zeigler, Brunn, and Johnson, 1981)

4. Notification of government officials in an emergency

In the 1986 Ottawa County plan, Governor Celeste was warned that the State had no means for obtaining information about radiation releases or the condition of the reactor independent of the information provided by the utility. This problem still exists in the current plan.

State authorities will not have independent information regarding radiation levels until state officials can get from Columbus to Ottawa county and take radiation measurements through field monitoring. This time frame is, at an absolute minimum, three hours from the time of first notification. State authorities have no means for independently assessing the condition of the reactor.

Without this type of impartial information, the governor is powerless in determining whether emergency response recommendations are appropriate.

The Ottawa County plan also calls for government officials and emergency response agencies to be notified by telephone and radio. The Witt report indicated that this type of communication increases the possibilities for misinterpretation or bad information, and can take too much time. Furthermore, in a radiological emergency, the four primary decision makers all live in close proximity to the plant (Ottawa County). If those four individuals are injured by the accident or are unreachable, it is not clear who is in command. Given the likely chaos that will result in such an accident, the chain of command should be written down and agreed upon by all levels of government.

5. Framework for decisionmaking responsibilities

The principal authority for emergency response in Ottawa County belongs to the county commissioners. The 1986 Ottawa County report pointed out this authority allows them to make key decisions affecting citizens beyond their local jurisdiction. Specifically, the authors of the report warned Governor Celeste that, "This framework for making emergency response decisions is unrealistic because it fragments decision-making and diffuses responsibility among local and state officials, creating the potential for delays in responding. In addition, it permits county officials authority for making key emergency response decisions which could affect citizens far beyond local political boundaries. This arrangement undermines the authority vested in the executive branch of state government." (page 10)

6. Current technology to track contamination

It is critical for effective response to a radiological emergency to 1) understand the nature of the release that has occurred, 2) monitor the radioactivity released, and 3) predict the direction, speed, duration and intensity of the radioactivity as it moves off-site.

In the Ottawa County plan, the initial process for assessing the problem is --

- 1. FirstEnergy notifies the county of the accident and conducts its own radiation monitoring. Based on FirstEnergy's monitoring, the county commissioners make recommendations for evacuation or shelter-in-place.*
- 2. FirstEnergy notifies state officials, who will then drive from Columbus to predetermined destinations in Ottawa County to conduct monitoring. This monitoring includes real-time monitoring and grab samples, which have to be sent to a lab for analysis.*

The Witt report found that the Indian Point plant, "relies on older vintage technology, 1970's era operational techniques - and multiple computer codes - that are not well integrated. The plant does not seem to have a way to visualize the resulting plume and juxtapose population information with it. Plant personnel specifically do not have a sophisticated means to calculate how much time is available for various communities to take protective actions" (page 208).

Given FirstEnergy's history of resisting modernization of plant equipment, the plan should assure that the best monitoring and modeling technology is available for emergency response.

Recommendations

The hole in the Davis-Besse reactor head and the related safety failures by FirstEnergy and the Nuclear Regulatory Commission demonstrate that the risk of a major radiological accident is much higher than the repeated assurances about FirstEnergy's redundant safety systems and NRC oversight would suggest. The 9/11 attack demonstrated another kind of frightening

vulnerability. With this increased worry, the adequacy of the Davis-Besse emergency response plan is of great concern.

The Witt Report recognized, "that these [emergency response] systems and practices were developed in a different environment. Simply stated, the world has recently changed. What was once considered sufficient may now be in need of further revision." (page vii)

Our review of the current Ottawa County Radiological Emergency Response Plan and comparison with the 1986 review of the Davis-Besse and Perry emergency response plans and the critique of the Westchester County, NY plan, raise troublesome questions about the adequacy of the current Ottawa County plan.

The plan's weaknesses are similar to those identified in 1987 in a report to then Ohio Governor Celeste, and they are similar to the recent review of Westchester County's plan.

It is irrelevant whether or not the Ottawa County plan meets minimal safety standards established by the Nuclear Regulatory Commission. Those standards clearly do not protect the lives and property of Ohioans, and therefore the state should establish safety standards that exceed those set forth by the NRC.

We share the opinion of the Witt Report, which states, "when plans and exercises, which omit such things as a realistic consideration of spontaneous evacuation and the unique consequences of a terrorist attack, still meet NRC and FEMA regulations, then those regulations need to be revised and updated on a national basis."

Therefore, we recommend that Ohio Governor Bob Taft take the following actions:

1. Withdraw his approval of the Ottawa County Radiological Emergency Response Plan until its weaknesses are addressed and corrected.
2. Commission a study by an independent, qualified consultant to analyze the emergency response plans for the Davis-Besse and Perry nuclear power plants.

Attachments

1. "Ottawa County Radiological Emergency Response Plan" (For a copy, contact James Greer, Director, Ottawa County Emergency Management Agency, (419) 734-6900).
2. "Evacuation From a Nuclear Technological Disaster," Donald J Zeigler, Stanley D. Brunn, and James H. Johnson, Jr., 1981 (for a copy, contact Amy Ryder, (216) 861-5200).
3. "Report of the Emergency Evacuation Review Team on Emergency Response Plans for the Perry and Davis-Besse Nuclear Power Plants," William Denihan, Director, Department of Highway Safety, Thomas Chema, Chairman, Public Utilities Commission, MG Raymond Galloway, Adjutant General, January, 1987 (for a copy, contact Amy Ryder, (216) 861-5200).
4. "[Review of Emergency Preparedness at Indian Point and Millstone Draft](#)," Chapter 11, James Lee Witt Associates, January, 2003
5. [Context for 1986 Ohio evaluation of Davis-Besse and Perry evacuation plans](#)
6. [Letter to Gov. Bob Taft](#), Amy Ryder, February 12, 2003 (22 KB .doc).

