

New Nuclear Power and Climate Change: Issues and Opportunities

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Nuclear Power and Emergency Planning

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What is Nuclear Emergency Preparedness?

- Equipment
- Facilities
- Procedures
- Training
- Drills
- Personnel
- Communications
- Agreements

What is Emergency Preparedness (Really)?

- **It's an organizational state-of-mind that we have anticipated and planned for unlikely, unexpected and even unthinkable events and we maintain a high state of readiness to deal with those events**

What does it do for us?

- Prepares us to manage a very unlikely catastrophic events and protect lives and property
- Allows us to manage the inevitable minor events and keep them from becoming perceived as major ones thereby ensuring continued plant operation

Emergency Preparedness Matured after Three Mile Island (TMI)

- March 28, 1979 at 4:00 AM - a pump failed
- Ultimately melted over a third of the uranium fuel
- Permanently disabled the plant
- Cost in excess of a billion dollars
- Resulted in widespread anxiety and evacuation of some members of the public
- Had a significant financial impact on the utility
- Created a lasting perception that nuclear power is ultra-hazardous
- Nearly ended nuclear power in the United States

Consequences

- Environmentally – a non-event
- Total radiation dose to maximally exposed member of the public $\approx 20\%$ of annual background (70 millirem/360 millirem)
- Created a lasting paranoia that any event at a nuclear power plant is significant

What did we learn?

- Depending who you talk to, TMI demonstrated that nuclear power is either inherently dangerous or incredibly safe
- Everything that could go wrong – did!
- Lots about training, instrumentation, equipment, failure modes, even plant design and how people are likely to make mistakes
- Even more about Emergency Planning

The Three Most Important EP Lessons from TMI

- 1) Communications

The Three Most Important EP Lessons from TMI

1) Communications

2) Communications

The Three Most Important EP Lessons from TMI

- 1) Communications
- 2) Communications
- 3) Communications

What do you mean by that?

- Communications must be;
 - Prompt
 - Accurate
 - Consistent
 - Clear
 - Meaningful
 - Empathic

TMI Errors (some)

- Information was inconsistent
 - whether or not there was a release in progress depended on who you talked to
- Information was techno-jargon
 - Well meaning, but untrained engineers showered the public and media with incomprehensible terminology
- Information was sometimes just wrong
 - Is there a hydrogen “bubble” about to explode

Minor Events are Inevitable!

- In part because of TMI and in part because of lack of knowledge of the behavior and effects of radioactive materials and ionizing radiation, every minor event could be blown out of proportion.

Emergency Action Levels

- Unusual Event, Alert, Site Area, General
- EALs define what events need to be reported
- Entry into an EAL condition **will be reported** to all Towns within 10 miles and the State within 15 minutes
- Follow-up communications **will occur every hour** or sooner
- EALs are **NOT discretionary** or arbitrary

A Matter of Survival

- Nuclear power has not only survived, but appears to be enjoying a renaissance
- This is due in part to effective, structured emergency planning that fosters confidence
- A structured response program where every abnormal event of even trivial significance gets reported immediately (<15 minutes) to offsite authorities
- Prompt and open communications and cooperation with local and state government
- Accurate and consistent sources of meaningful information in any type of event – large or small

Does it work?

- It seems to be working well.
- Every year there are dozens of low-level events that get reported to local, state and federal authorities under Emergency Plans
- None of these events appear to result in undue concern
- In most cases, local authorities understand the plant condition and have answers for citizens before they even realize an event has occurred

How Important is this?

- Nuclear Power cannot survive without public confidence
- Public confidence cannot be maintained without sharing of information on even the most trivial operational occurrence
- Yes, the standards that get applied to nuclear power are NOT the same as other industries – so we need to be better than anyone

Contact Info

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