



Living in the ZONE

The Emergency Planning Zone (EPZ) is the 10-mile radius area that surrounds a Nuclear Power Plant. The 10-mile radius is the area that likely would be evacuated in the event of a radioactive release from a nuclear reactor. However, this radius does not necessarily reflect the possible real-world impacts of a nuclear accident. The 1986 Chernobyl accident, for example, resulted in an 18-mile radius permanently evacuated, with more evacuations and resettlements occurring as far as 200 miles from the reactor site.

Calvert Cliffs Nuclear Power Plant in Lusby, Maryland

The Calvert Cliffs EPZ includes residents, farms, and major institutions in Calvert County, Dorchester County, and St Mary's County.



Federal law requires that Calvert Cliffs (Constellation Energy) maintain a detailed Emergency Preparedness Plan (EPP). The EPP must provide; an emergency notification system, established shelter locations, and viable evacuation plans.

Constellation Energy must provide information for residents, special needs populations, businesses, schools, and other institutions and tourists' venues. The information should explain how state and local authorities will notify the public in case of an emergency and what protective measures they should take. They should also provide information about radiation and its risks to health and the food chain.

Remember Katrina

Hurricane Katrina taught us several things about how (un)well we plan for emergencies, how (in)adequately the agency (FEMA) tasked with carrying out a coordinated emergency response performs, how devastating a breach in a man-made structure can be, and how poorly we meet the immediate and on-going needs of the effected population. There was much discourse (though perhaps not enough) to identify what went wrong. There has been less about what will be done to improve and

upgrade our emergency response protocols; however there are inherent chinks in the theoretical nature of emergency response. Universal issues in emergency response include:

Emergency response personnel attrition

Emergency response scenarios do not realistically take in to account any significant attrition by role abandonment or delay of emergency respondents in the event of a nuclear accident. Human Behavior phenomena suggest that some number of those tasked with critical jobs in the event of an accident experience "role conflict". Role conflict in this case means that some emergency responders will put their duty to their own family and loved ones before their duty to the general population.

Theoretical exercise of emergency plan

The emergency preparedness plan for a nuclear accident is supposed to be exercised every 2 years. The exercise, while important, is not on scale with actual actions that would occur in the event of an emergency that results in a full scale evacuation, nor does once every two year exercises lend to adequate response confidence.

Multi-agency large scale coordination efforts

The emergency preparedness plan is coordinated among the nuclear power company, the Nuclear Regulatory Commission, FEMA, the state, the county, and local institutions and emergency response agencies (i.e. hospitals, fire departments, traffic control, police department, etc). This level of effort often fails to identify clear decision making procedures and roles. This lack of clarity often results in some efforts falling between the cracks and

accountability can get muddled in the aftermath.

Emergency efforts that require multiple agency coordination can also experience complications with emergency responder communication. For example, during the collapse of the World Trade Center, the fire fighters and police could not communicate directly, nor did the fire fighters walkie-talkies work inside the building. Many fire fighters lost their lives because they did not hear the order to evacuate before the building collapsed. Similarly, a nuclear waste transport accident many years ago in the Southeast saw response by multiple agencies -- since each agency was on its own communication channel, there was little to no coordination, and a lot of confusion, stepping on toes, and working at cross purposes as a result.

Spontaneous Evacuation

Emergency plans, and their arbitrary 10 mile planning zone, fail to take into account the real-world behavior of people, who typically evacuate in far greater numbers, and farther away, than planned. For example, during the Three Mile Island nuclear accident in 1979, only pregnant women and pre-school children within five miles of the reactor were advised to evacuate: about 3400 people. Instead, some 200,000 people fled the area, from as far as 25 miles away. Such unplanned-for evacuations can clog roads and hamper the ability of persons closer to the reactor from successful escape.

Lack of KI distribution

Potassium Iodine (KI) acts as a blocking agent to radioactive iodine. It is prescribed to protect the thyroid from radioactive iodine in the event of an accident or attack at a nuclear power plant, or other nuclear attack, especially where a nuclear reactor is breached and

the volatile radionuclides are released into the environment. According to the Public Health Security and Bioterrorism Preparedness Act of 2002, KI is to be distributed to populations living within 20 miles of a nuclear power plant. However, the congressional mandate has yet to be carried out--leaving many at unnecessary risk. The NRC has argued against the distribution while simultaneously promoting "shelter-in-place." Shelter-in-place is an alternate response to evacuation during a general emergency. If individuals are asked to stay in their homes or other buildings in the event of a nuclear general emergency, it is unethical that they would not have KI provided to them.

Calvert Cliffs Specific Issues

Expect Delays

There are several Calvert Cliff specific issues currently under investigation. Central to the issue of evacuation planning for those living in the 10-mile radius EPZ is the question of adequate evacuation routes. The main conduits out of the zone are route 2/4 and the Thomas Johnson Bridge. Local residents have been quick to point out that traffic on 2/4 and the Johnson Bridge are slow on a good day. What would be the result of entire communities frantically attempting to exit the zone simultaneously?

Is there a Town Crier on staff?

Nuclear Power Plant companies are required to post emergency notification sirens throughout the EPZ to alert the public in the event of a radiological accident. If there is an electrical grid failure, the sirens will not operate when they are needed most. Electrical grid failure can also be an initiating event to a nuclear accident. Calvert Cliffs' emergency plan **does NOT require**

backup power systems in its radiological emergency public notification system for any of its sirens posted within the 10-mile radius Emergency Planning Zone (EPZ).

How Grid Failure Can Exacerbate a Nuclear Accident

If grid failure happens, the power to all of Calvert Cliffs' reactor safety systems is also cut off. In such an event, the reactor is designed to automatically engage redundant emergency diesel generators (EDGs) to provide power to an essential subset of reactor safety systems. In other words, just when the plant safety margins get thinner, the sirens go down. If the EDGs fail to start or are deliberately disabled, the final safety net is battery backup for vital last ditch safety systems for about 4-8 hours. After that there is a Station Blackout. The core starts to over heat because there is no power to the cooling system. The fuel can then melt.

Natural Disaster vs. Nuclear Accident

Natural Disasters

We can't prevent them.
We can to some degree predict when and where they will occur to help mitigate some of the pending devastation.
With the proper resources, the affected communities can put their lives back together.

Man Made Disaster- Nuclear Accident

We can prevent them by not building nuclear reactors and phasing out the aging dinosaurs that loom throughout the US and abroad.

We have short notice and a shorter time to shield from catastrophic devastation. No amount of resources can compensate for the irreparable immediate and long-term health effects and environmental impacts to the affected communities and ecosystems.