

War & Peace Cluster, Summit Program
Physics Assignment 2

There are two main drawbacks to nuclear power, the proper disposal of nuclear waste, and the possibility of a catastrophic accident. An assignment in the fall dealt with the former, this assignment with the latter. The questions will require some Internet research, although the answers are readily available, and you should be able to find them easily.

There have been three major accidents at nuclear reactors, one at Chernobyl in the Soviet Union (as of the date of the accident), the accident at Fukushima (Japan), and one at Three Mile Island in the United States. Research and describe each accident, and its impact.

For each you might want to consider the following questions:

1. When, and where, did the accidents occur? The “where” could include proximity to towns and cities, and other identifiable geographic landmarks. A map would be good.
2. What was the cause of the accident? Be specific about details, all the accidents result from an accumulation of errors and/or design flaws. A simple one sentence explanation (“there was a meltdown of the core”) is not going to adequately explain what happened. What were the personnel doing or attempting to do? What decisions were made?
3. What was the result of the accident on the structure of the reactor?
4. What is the current status of the reactor? What about other reactors on the same site?
5. How many people have died as a result of the accident
 1. within a few days?
 2. in the time since the accident?
6. How has the environment around the reactor changed as a result of the accident?

In the case of the Chernobyl accident, also answer the questions

7. How was news of the accident first released to the world at large?
8. Why could an accident like this not have happened to a reactor in the United States?