SECURITY ISSUES AT SEABROOK NUCLEAR POWER PLANT

Excerpts from testimony of David Lochbaum, Nuclear Safety Engineer for the Union Of Concerned Scientists, at the C-10 Research and Education Foundation hosted Public Forum on Nuclear Security held at Newburyport, MA, Nov. 15, 2001:

1. Since 1991 the NRC [Nuclear Regulatory Commission] has tested plant security with a "Force On Force" test. The NRC sends mock intruders to penetrate plant security. A small band of these mock intruders test the gate and guards to see how effective the physical barriers and guards are at preventing this small band of intruders from successfully causing a reactor meltdown.

2. Nuclear plants get a 6-month advance notice of this test. Over a period of 11 years, 70 tests have been conducted. At 36 plant sites the mock intruders were able to penetrate the plant to cause a mock meltdown.

3. There is a 50% failure rate in these tests. Terrorists don't give advance notice!

4. The NRC doesn't take these tests seriously. Whether a plant passes or fails their test there is no chance that it will be shut down until the security measures are fixed.

5. The NRC runs these tests every 8 years. Since Sept. 11, all tests were cancelled. More frequent tests should be conducted, not less, in response to Sept. 11.

6. Congress sets NRC priorities. Security has not been a priority.

7. Industry wants to conduct its own tests, grade itself and send the results to the NRC!

8. "The cheapest way to fix a mistake is not to make it."

9. The NRC has never considered attacks by water or by air, only ground attacks.

SAFETY ISSUES AT SEABROOK NUCLEAR POWER PLANT

Excerpts from testimony of Dr. Gordon Thompson, Executive Director of the Institute For Resource and Security Studies, at the C-10 Research and Education Foundation hosted Public Forum On Nuclear Security held at Newburyport, MA, Nov. 15, 2001:

1. Seabrook Nuclear Power Plant: This facility has a double containment dome made of steel reinforced concrete. The outer dome is 15 inches thick at its thinnest and the inner dome is 3.5 ft. thick at its thinnest. Why is it such a massive structure? Because the core contains highly dangerous radioactive material, the inevitable product of harnessing the fission process for the purpose of generating energy.

2. Spent Fuel Pool: When the fuel rods in the reactor core of a nuclear power plant are used up, they are placed in the Spent Fuel Pool adjacent to the reactor, not in the containment dome. Spent fuel rods contain short-lived [days and weeks] and long-lived [years] radioactive materials.

3. Spent Fuel Pool at Seabrook: This pool contains massive amounts of long-lived radioactive material. Seabrook has 2 cores worth of fuel in the pool as of now. This plant has been operating for 11 years and is licensed to operate for 40 years, at which time there will be 7-8 cores worth of spent fuel present.

4. Cesium-137: This is one of many long-lived radioactive isotopes. Historic atmospheric weapons testing in the 1950's-1960's released 20 million curies of Cesium-137 into the atmosphere and onto the surface of the northern hemisphere. The accident at Chernobyl in 1986 released 2.5 million curies of Cesium-137. Large areas are still uninhabitable, health effects are becoming apparent and there are agricultural restrictions due to contamination 1,000 miles from the accident.

5. Cesium-137 at Seabrook: The spent fuel pool at Seabrook is approaching 20 million curies of Cesium-137 or 10 times the amount released at Chernobyl. After 40 years of operation, there will be 70-80 million curies of Cesium-137 in the spent fuel pool at Seabrook.

6. The NRC: This agency has never required nuclear power plants to be built to resist extreme acts of malice or insanity [terrorism]. This threat had never been considered.

7. Studies At Seabrook: Studies funded by the owners of this plant show that as aircraft impact is a realistic and for-seeable event. Any aircraft over 37 tons in weight would rupture the containment dome on impact and the reactor cooling circuit. Impact on the control room or auxiliary building could be expected to lead to immediate initiation of a core melt accident. Examples of take off weights for various aircraft are: Boeing 757 = 110 tons
   Boeing 767 = 140-180 tons
   Boeing 747 = 360-400 tons

8. Consequences of a 747 crash into the domes: A violent explosion could be expected if a 747 crashed into the containment domes. Aircraft contain jet fuel and half of the fuel load contains chemical energy equivalent to 1000 tons of TNT. If the fuel accumulates in a confined space, such as exists between the inner and outer domes at Seabrook, and is ignited, then a violent explosion would occur.

9. Consequences of a crash into the Spent Fuel Pool: The spent fuel pool is a massive structure but below ground. Events such as an object falling into the pool could displace the water that is there to cover the spent rods. If an accident with loss of containment occurred from a heavy aircraft impact, the site would immediately be contaminated and access would be precluded over a period of several days. It would take an heroic effort to replace the water. The spent fuel pool would boil dry and the rods would catch fire. If this happened at Seabrook we could have an accident 10 times greater than the Chernobyl accident. As years go by the accident would be proportionately worse because of the increased spent fuel in the pool.

There are “realistic and plausible mechanisms that could create today an accident 10 times greater than Chernobyl.”

March 16, 2002

Letter To The Editor:

After the Sept. 11th attacks on our country, are the risks to the public in the operation of the Seabrook Nuclear Power Plant really worth the amount of electricity that the people receive?

The terrorist threat has never been a required consideration by the NRC in the licensing of nuclear power plants.

Studies show that any aircraft over 37 tons in weight would rupture the containment at Seabrook on impact, as well as the reactor cooling circuit. For example, take off weight for a Boeing 747 is 360-400 tons. An immediate initiation of a core melt accident could result from impact on the control room or the auxiliary building. According to Dr. Gordon Thompson, Executive Director of the Institute for Resource and Security Studies, a violent explosion could be expected if a 747 crashed into the containment dome.

Aircraft contain jet fuel. “Half of the fuel load contains chemical energy equivalent to 1000 tons of TNT. If the fuel accumulates in a confined space, such as exists between the inner and outer domes at Seabrook, a violent explosion would occur”, says Dr Thompson.

The Spent Fuel Pool is another source of extreme vulnerability for the public. This below ground structure contains massive amounts of long-lived radioactive material, under water. At the present time, there are 2 reactor cores worth of spent fuel in the pool, after 11 years of operation. In 40 years, the expected life of the Seabrook nuclear plant, there would be 7-8 cores worth of radioactive material.

Why is this material dangerous to the public? One long-lived radioactive isotope in these spent fuel rods is Cesium-137. The accident at Chernobyl in 1986 released 2.5 million curies of Cesium-137 into the atmosphere. Large land areas are now uninhabitable, health effects are becoming apparent and there are agricultural restrictions more than 1,000 miles away from the accident site. The Cesium-137 in the Spent Fuel Pool at the Seabrook Nuclear Plant is now nearing 10 times the amount released at Chernobyl. In 40 years, the life of Seabrook, there will be 70-80 million curies of Cesium-137 in the spent fuel pools.

The spent fuel rods must be kept under water at all times. If that water is displaced by a falling object or a loss of containment accident from aircraft impact, access would be impossible because of contamination. Over a period of days, the spent fuel pool would boil dry and the rods stored there would catch on fire. We, the public, could expect an accident 10 times greater than the Chernobyl disaster. As time goes by and spent fuel continues to be accumulated in the pool, the size of the potential disaster increases proportionately.

Should the people be forced to live with the threat of disaster already 10 times greater than was experienced at Chernobyl? The time has come to stop the accumulation of radioactive waste at Seabrook.

The time has come to shut down the Seabrook Nuclear Power Plant and to deal with the radioactive waste already accumulated. Consider what we are leaving to future generations. Consider our own generation.

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