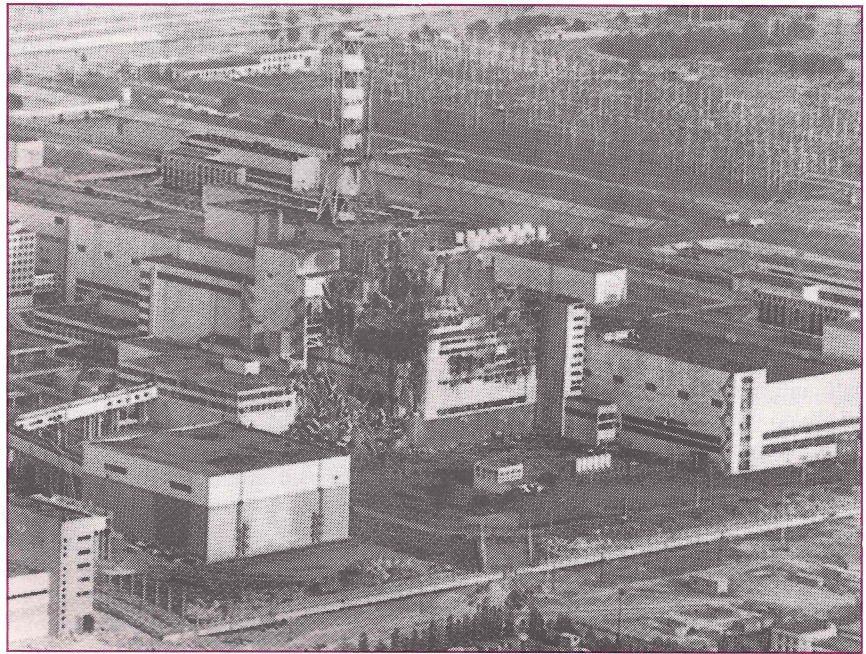




CHORNOBYL: ITS IMPACT ON UKRAINE

by David R. Marples

April 26, 1996 will mark the tenth anniversary of the nuclear disaster at the Chornobyl nuclear power station in Ukraine. Perhaps more than any other event in modern history, Chornobyl has generated emotions and wildly fluctuating interpretations.



CANAPRESS Photo Service

Damaged reactor at Chornobyl's nuclear power station immediately after explosion.

There is no consensus on many issues even today. In April 1986 there were various prognostications as to the future casualty rate from cancer. The lowest such total, provided by the Soviet authorities, was about 2,500; the highest, that of Dr. John Gofman of the University of California, was 500,000. Such data was based primarily on the amount of radiation entering the atmosphere and eventually landing in the soil and forests; and the amount of Chornobyl radiation received by the population, particularly the evacuees from the area and the so-called "liquidators" or cleanup workers.

Scientists have also differed on the amount of low-level radiation that can be tolerated by the human body. During the aftermath of Chornobyl, the Academy of Medical Sciences of the USSR developed the

"35 rem concept," signifying that over a normal 70-year lifespan, the average human could safely tolerate - in addition to natural background radiation - 35 rems (full body count), 0.5 rems per year. The concept was greeted with outrage in Ukraine, particularly among environmental groups such as Zelenyi Svit, which argued that for some residents, the 35 rems had been surpassed in the days after the accident. Ukraine, together with other affected countries such as Belarus and Russia, eventually replaced the 35 rem concept with a 7-rem limit over a lifetime.

The new Ukrainian radiation tolerance law also led to some difficulties. As in all the affected countries, it is calculated according to ground contamination, since aside from within and around the damaged reactor itself, there is little contamination in the air at present. It is measured principally by the radiation fallout of Cesium-137 (though the amount of strontium and plutonium in the soil is also taken into account), but the fallout has not been uniform. Far from it. Areas 300 miles from the nuclear plant have been found to be contaminated whereas some clean spots can be found relatively close by. What it has meant inevitably is that the Chornobyl fallout area has become much wider, since today all those areas in which

the population can acquire only an additional 0.1 rems per year are now included in the fallout zone. For Ukraine, it meant, for example, that areas as distant as the provinces of Volhynia became contaminated zones. As a result, the Chornobyl question has become an almost unbearable load for the newly independent government.

The Nuclear Accident and Its Tragic Aftermath

The Chornobyl nuclear power station is located in the northern part of Kyiv Oblast of Ukraine, about 90 miles north of the capital city with its 2.5 million inhabitants. Built in the 1970s, there were six reactors by April 1986, four in operation and two under construction. It is a graphite-moderated plant (acronym RBMK), one of several of this design in the former Soviet Union, but the only such plant in Ukraine. (The others are Sosnovyi Bor, near St. Petersburg, Kursk, Smolensk, and Ignalina in Lithuania.) The technology of the station had been criticized by western nuclear experts as containing the inherent flaw that the reactor becomes unstable if operated at low power. The

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