

By Zoltan Grossman

EITHER WAY, IT'S A TERRIFYING prospect. Scenario one: the Soviet hierarchy ordered the ill-fated experiment that precipitated the meltdown and subsequent explosion at Chernobyl's reactor four. Scenario two: plant supervisors initiated the step-by-step safety system shutdown that led to the worst accident in the history of nuclear power. As *In These Times* went to press, contradictory clouds of explanation still hung over Chernobyl, but the following details seem indisputable.

The purpose of the experiment, which began at 1:05 p.m. on April 25, was to determine how long turbine generators would run emergency equipment in case of a steam-flow loss from the reactor. Unit four's staff began running the reactor at very low power, something its safety systems would normally interpret as a shutdown if they hadn't been bypassed. First, they turned on the number 7 power turbine. Then, at 2:00 p.m., the emergency cooling system was deliberately disabled to prevent a shutdown. By 11:10 that night, the automatic control system was likewise disabled.

At 1:07 a.m., all eight circulation pumps were circulating steam for the turbine test, leaving less water available for cooling. The reactor power output began to vary wildly. The operators then disabled the alarm systems and pulled control rods out of the reactor's uranium core to keep it generating heat.

At 1:22 a.m., in what proved to be the fatal move, the operators reduced the water coolant to the core. A minute later, the reactor's power output shot up by a factor of seven. Thirty-six seconds later, the operators tried to reinsert control rods to tame the core and stifle the runaway chain reaction. Halfway down, the control rods halted, and a loud bang was heard. It was only a matter of seconds before steam and hydrogen built up in the reactor. At 1:24 a.m., a steam explosion ripped the top off unit four, followed by a billowing fireball of burning hydrogen. The core's graphite liner quickly ignited, belching radioactive smoke high into the atmosphere. At least part of the reactor's uranium fuel source melted down.

As dawn broke, police entered the area and washed the radioactive debris off the roads leading to the nuclear plant. Most residents near Chernobyl received radiation equivalent to 1,200 chest X-rays. On April 28, 135,000 people living in the 300 square miles surrounding the plant were evacuated.

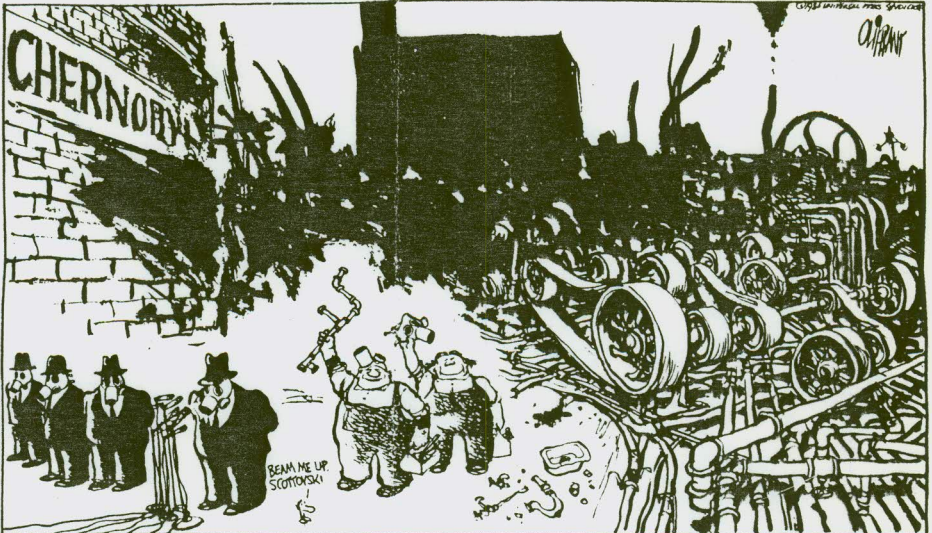
Within days, cleanup teams entered the area to wash the contaminated buildings and to strip off the irradiated topsoil—replacing it with imported earth. The cleanup continued, but the reactor fire burned for 12 days, until it was doused by sand, lead and boron dumped from military helicopters. The blaze briefly re-ignited on May 23 and radiation levels in the center of the zone remain 2,500 times the normal levels.

In the Ukrainian capital of Kiev, 70 miles south of the plant, radiation levels were 80 times higher than normal a week after the disaster. Kiev is still waiting for autumn leaves to fall from its chestnut trees; when they do, they will be trucked off as radioactive waste.

Death toll estimates disputed

The Soviets have predicted that 6,300 will die of cancer in coming years as a result of the Chernobyl disaster. They made their estimate at an International Atomic Energy Agency conference in Vienna last month, and also provided the above details in a "spirit of openness."

Interpretation of the data varied, however. Two Western delegates in Vienna originally suggested that between 26,000 and 40,000 people would die of cancer, nearly all within the western Soviet Union. But two days later, they backed down from those numbers, claiming that they had been based



OUR HEROIC TECHNICIANS HAVE MADE WHATEVER MINOR AND TRIVIAL ADJUSTMENTS WERE NECESSARY...

Venting the hot air from the winds of Chernobyl

on maximum radiation release figures, rather than average figures. Their new minimum was closer to the Soviet estimate: 26,000 became their new maximum.

Yet other scientists accused the two experts of minimizing Chernobyl's effects to protect nuclear power programs, pointing out that even the highest estimates did not take genetic defects into account. Some claimed the ratio that was used—one death for every 10,000 rems—was too low.

Dr. Robert Gale, the celebrated American bone-marrow specialist who treated Chernobyl victims, said that public health experts expect up to 75,000 cancer deaths worldwide. So far, Soviet officials say that 31 have died, far from the 2,000 deaths estimated in hysterical post-accident Western news reports. But with radiation exposure, short-term body counts are always ludicrously low. Not only do thyroid and other cancers have a long-term gestation period, but many potential victims may absorb fatal radiation doses from food grown in contaminated soil. (For a graphic depiction of genetic damage to plant life caused by the relatively minor accident at Three Mile Island, see photo on page four.)

Soviet officials admit that their graphite-moderated reactor design played a role in the explosions. At the time of the accident 23 such reactors had been built, with four more planned. (Nineteen other Soviet reactors use pressurized water—the same design that failed at Three Mile Island. Two others are highly controversial fast breeders.) But it isn't as if the Soviets had no warning about power plant safety hazards. A seemingly prescient March 27 article in Kiev's *Literaturna Ukraina* described Chernobyl unit four: "...all the flaws in construction that are unhappily typical made themselves evident in the most extreme forms." Mikhail Gorbachov has used Chernobyl as an example in his drive toward greater technocratic efficiency and worker discipline.

Some graphite-moderated reactors have since been shut down pending new safety measures. Officials now describe Chernobyl as a serious setback for their nuclear program—a stunning admission in light of the recent drop in oil prices. The Soviets had been hoping to conserve oil and natural gas—four-fifths of their foreign exchange dollar earnings—by using nuclear heat reactors near cities. Thus Chernobyl may turn out to be a Soviet economic disaster as well.

The Western nuclear industry has long envied the expanding Soviet nuclear industry. Cold warriors had interpreted this expansion as necessitating an "energy race" with the Soviets. In a 1978 radio broadcast on nuclear energy, Ronald Reagan alleged that the Soviets are "planning to outstrip us in the nuclear arena" and that Western nuclear power opponents are thus "unwitting victims of Soviet designs."

After the Chernobyl disaster, American officials tried to placate public fears, claiming that the Soviet plant lacked an American-style concrete containment structure a claim later proven false. Yet even before it was, a *New York Times* poll showed that seven out of 10 Americans saw such a catastrophe as likely here.

Eastern bloc protests

In the months since the catastrophe, it has become evident that an anti-nuclear movement would be slow to develop in the Soviet bloc. Nonetheless, Poles demonstrated and signed petitions against the planned start-up of the Soviet-built Zarnowice plant. They joke sardonically that Polish-Soviet friendship can be "measured" with a geiger counter.

The most dramatic example of resistance took place among a group of Soviet army reservists. Hundreds of Estonian men were ordered—some in the middle of the night—to help with decontaminating the evacuation zone. They worked 14-hour shifts in a highly irradiated environment with insufficient water rations and suspect radiation protection. Mental stress was heaped upon physical danger, as the cleanup foremen routinely joked to the Estonian conscripts about their impending sterility.

In June, the weary Estonians were told that their Chernobyl duty had been extended four months. This last straw led to a long and bitter strike. According to the Estonian Communist Youth League daily paper *Noorte Haal*, most of the conscripts were then sent home.

A more blatantly political protest was staged by Moscow Trust Group, an independent peace group dedicated to building "detente from below" between Easterners and Westerners. Members held talks in Moscow with a delegation of West German Greens the week before the Chernobyl disaster. An open letter dated May 6 from the group read, "...from now on, our anti-nuclear platform firmly includes the most negative attitude to nuclear power stations."

On August 3, a Trust Group member was detained, along with four Western anti-nuclear supporters, who were handing out leaflets on Chernobyl in Moscow. The protesters were released within an hour. (See article in next issue of *In These Times*.) The Russian-language leaflets informed Muscovites of the extent of the contamination—information not available in their press—drawing mainly from documentation of radiation hazards at U.S. nuclear weapons facilities. The leafletters held a sign reading "No More Hiroshimas—No More Chernobyls." Hundreds of the pamphlets—emblazoned with peace signs—were confiscated in five minutes at the entrance to Gorky Park.

Chernobyl's impact on nuclear power worldwide remains to be seen. According to Dr. Gale, the drifting radioactive cloud may give fatal cancer to as many as 35,000 people outside Soviet borders—mostly in Europe.

The political fallout has affected different countries in different ways, however. While strengthening nuclear opposition in Sweden and West Germany, it has barely dented the pro-nuclear monoliths in France and Czechoslovakia. Perhaps Chernobyl's greatest effect outside the Soviet Union will be on Third World countries. Brazil has put its program on hold, while strikes and sabotage have prevented a Philippine reactor from starting up. Countries, such as Argentina, China and Cuba, which had been looking to the Soviets for nuclear assistance, may begin to question the wisdom of nuclear proliferation. It should be noted, however, that similar delays took place after Three Mile Island, only to be later forgotten. (After that accident, a Cuban nuclear official was quoted as saying that there was "no scrimping on protective measures" by the Soviets.)

Both the Eastern and Western nuclear industries have gotten themselves snared in Chernobyl's web. The more they try to limit discussion of its implications to rems, rads and reactor designs, the more they expose their haphazard decision-making process. The more they try to depoliticize nuclear power, the more they end up politicizing it. The irony of the new Soviet policy of "openness" is readily apparent. The more people hear of the worst nuclear plant accident in history, the less they want to be saddled with the dangers of nuclear power.

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