

The Atomic Energy Commission's paramount objective remained "assuring the common defense and security." Congress, nonetheless, possessed a vision of a peaceful atom inaugurating profound social, economic, and political changes in the American way of life. The Atomic Energy Act charged the new Commission with directing the development and utilization of atomic energy toward "improving the public welfare, increasing the standard of living, strengthening free competition in private enterprise, and promoting world peace."²¹ In the late 1940s and early 1950s, limited stocks of uranium precluded the rapid development of peaceful uses including civilian power reactors. The Commission, even so, initiated a coherent peaceful uses program with limited power reactor experiments and established the National Reactor Testing Station near Idaho Falls, Idaho.²²

ATOMS FOR WAR REDUX

Tensions between the Soviet Union and the United States in the immediate aftermath of the Second World War soon dashed any hopes for an international agreement controlling atomic energy. As relations deteriorated and the Cold War escalated, military requirements for fissionable materials increased accordingly. Between 1947 and 1952 the Atomic Energy Commission initiated the construction of production facilities that increased production capacities enormously. The new facilities included three additions to the Oak Ridge gaseous diffusion complex; entirely new gaseous diffusion plants at Paducah, Kentucky, and Portsmouth, Ohio; five additional reactors for producing plutonium at Hanford; and five heavy water reactors for producing tritium from lithium⁶ as well as plutonium at the new Savannah River, South Carolina, site. In addition, the Commission constructed auxiliary facilities to enlarge and strengthen the production chain from ore to weapons. These included a feed material production center at Fernald, Ohio, and component plants at Rocky Flats, Colorado, and Amarillo, Texas. By summer 1952, 150,000 workers were engaged in construction activities.²³

The Soviet Union's successful detonation of a nuclear device in late August 1949 resulted in intense debate about whether the Commission should pursue a "quantum jump" in weapon technology in an all-out effort to develop a thermonuclear device. The Commission's general advisory commission recommended against such an effort and three out of five commissioners opposed it. But with strong support from the congressional Joint Committee on Atomic Energy and the Department of Defense, as well as from prominent scientists such as Edward Teller and Ernest O. Lawrence, President Harry S. Truman on January 31, 1950, announced that the Commission should expedite work on the thermonuclear weapon. Increased weapon development efforts resulted in the establishment of a second weapons laboratory at Livermore, California, in 1952. A continental testing site was set up in the Nevada desert outside Las Vegas to complement the Pacific test site located in the Marshall Islands.²⁴

Because of these efforts, the 1950s witnessed tremendous advances in the design and development of nuclear weaponry. Tactical nuclear weapons were designed and deployed. Nuclear warheads were married to various short, intermediate, and long-range missiles. On November 1, 1952, the United States achieved the first thermonuclear detonation with the *Mike* shot of the *Ivy* testing series at Enewetak Atoll in the Pacific. *Mike* yielded the equivalent of over 10 million tons of TNT. Developments during the 1954 *Castle* testing series gave the United States a deliverable thermonuclear weapon and opened the way to a whole "family" of thermonuclear weapons in a spectrum of yields. But the March 1 *Bravo* test of the series at Bikini Atoll unexpectedly exposed hundreds of Marshall Islanders to the toxic radioactivity of the fallout cloud. Increased concern regarding radioactive fallout helped spur test ban negotiations that eventually resulted in the Limited Test Ban Treaty of 1963.²⁵

The Limited Test Ban Treaty banned atmospheric testing but legitimized underground testing. During the 1960s, weapons development and testing became largely routinized,