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The Japanese aerial attack on Hanford Engineer Works CHARLES W. CLARK, Joint Quantum Institute — The day before the Pearl Harbor attack, December 6, 1941, the University of Chicago Metallurgical Laboratory was given four goals: design a plutonium (Pu) bomb; produce Pu by irradiation of uranium (U); extract Pu from the irradiated U; complete this in time to be militarily significant.[1] A year later the first controlled nuclear chain reaction was attained in Chicago Pile 1 (CP-1). In January 1943, Hanford, WA was chosen as the site of the Pu factory.[2] Neutron irradiation of ^{238}U was to be used to make ^{239}Pu. This was done by a larger version of CP-1, Hanford Reactor B, which went critical in September 1944. By July 1945 it had made enough Pu for two bombs: one used at the Trinity test in July; the other at Nagasaki, Japan in August. I focus on an ironic sidelight to this story: disruption of hydroelectric power to Reactor B by a Japanese fire balloon attack on March 10, 1945. This activated the costly coal-fired emergency backup plant to keep the reactor coolant water flowing, thwarting disaster and vindicating the conservative design of Hanford Engineer Works.

[1] *Management of the Hanford Engineer Works in World War II*, H. Thayer (ASCE Press 1996)
[2] *Made in Hanford: The Bomb that Changed the World*, H. Williams (Washington State U. Press 2011)

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