7.5.4 Other Accidents

There have, of course, been other lesser accidents during about 15,000 cumulative reactor-years of commercial nuclear power plant operation throughout the world. There has also been extensive experience in other reactors, mostly military and experimental. One of the worst accidents in other reactors was the Windscale fire of Oct.10, 1957, in one of two graphite-moderated air-cooled processing reactors at the Windscale facility on the northwest coast of England (Windscale Accident Website 2015). The two reactors had been hurriedly built as part of the British atomic bomb project. The fire occurred when one of the fuel channels overheated and caught fire; it burned for three days and caused a release of radioactive material that spread across the UK and Europe. In particular this led to much concern regarding the spread of the radioactive iodine isotope ^{131}I and the contamination of milk in particular. Though no evacuation took place, dairy produce was destroyed for about a month.

There has also been extensive experience in other electricity-generating reactors, mostly military; in particular the US Navy who have operated nuclear power plants since 1955 have an excellent safety record. Among the non-military plants, aside from the three major accidents there have been about ten core meltdowns mostly in non-commercial reactors and none of these generated any hazard outside the plant. One of the reasons for the fine record of the US Navy is that there was broad standardization in the design, construction and management of their nuclear power plants (though two USN nuclear submarines have been lost for other reasons and there have been reactor accidents including LOCAs in Soviet and Russian nuclear submarines (Johnston 2007)). This allowed for safety experience to be broadly applied with subsequent widespread benefit. It is now recognized that a corresponding lack of standardization in commercial power plants significantly impaired their safety margins. In the aftermath, both national and international agencies charged with nuclear plant oversight are actively involved in pressing for standardization not only in the construction of new plants but also in the upgrading of older plants. In a broader context, global cooperation on safety issues has increased greatly in the aftermath of Chernobyl and Fukushima (see, for example, OCED 1996).