PNFA FACT SHEETS

RISK AND EFFECTS OF A MELTDOWN

- Nuclear power plants are vulnerable to events that could lead to meltdowns, events which include human and mechanical errors; impacts from climate change, global warming, tsunamis and earthquakes; and terrorists.

- The 19 locations identified by The Australia Institute as the most likely sites for nuclear power plants in Australia are all considered medium or high earthquake risk, according to the Geoscience Australia Earthquake Database.

  (http://www.tai.org.au/documents/downloads/WP96.pdf)

- In the event of a meltdown in the U.S, both the Nuclear Regulatory Commission and the Environmental Protection Agency require an evacuation plan for all people living within a ten-mile radius of the reactor.

- During a meltdown, doses of radiation will be incurred from inhalation and direct exposure to the radioactive cloud, and exposure to the radioactive particles that deposit on the ground, which emit large amounts of gamma radiation. This is called ‘groundshine’.

  People in the evacuation zone will receive enormously high doses of radiation ranging from a mean of 198 rems to a possible peak of 1,490 rems. 250 rems kills 50% of those exposed.

  High levels of radiation kill the actively dividing cells in the body – hair, gut and blood-forming elements. The symptoms that would be experienced by people include acute loss of hair, severe nausea, vomiting and diarrhoea, bleeding from every orifice – nose, mouth, gums, stomach and bowel – and massive, overwhelming infection. This collection of symptoms was first

experienced by Hiroshima victims, and is called acute radiation sickness.

- The number of early fatalities from this syndrome within a ten mile evacuation zone surrounding the Indian Point nuclear power plant which is situated 35 miles from New York will range from 2,440 to 11,500. If it is raining and the weather conditions maximise the fallout, peak fatalities could reach 26,200 in the ten mile zone and 43,700 in the fifty mile zone.

  Late cancer deaths, which will occur two to sixty years later, range from 9,200 to 89,500 people within the ten mile zone, and up to 518,000 people in the fifty mile zone.

  The early and late stage fatalities can be reduced within the ten mile zone if people take shelter from radiation exposure in their houses, schools, and workplaces during the acute phases of the radioactive fallout.

- During the early stages of a meltdown, isotopes with very short half-lives emit huge doses of radiation. As the isotopes decay over several days, so the exposure relatively decreases.

  When a meltdown occurs, many deadly, long-lived isotopes make up the radioactive plume, all of which migrate to different and specific organs of the body. Food grown in the area will remain radioactive for tens to hundreds of years.