

# The Medical & Environmental Consequences of Nuclear Power

There is currently a major push in the United States to extend the operating life of old nuclear power plants and to get approval to build new ones. Some claim that nuclear power is the answer to global warming and will make us safer by reducing our dependence on foreign oil. This is not true. Nuclear power's fuel cycle produces large quantities of greenhouse gases. Nuclear plants can be a source of fuel for nuclear weapons and they are attractive targets for terrorism. They are a medical catastrophe waiting to happen by accident or intent.

- Nuclear power plants are responsible for 93% of the CFC 114 (chlorofluorocarbon) gas released annually in the U.S. during the process of uranium enrichment,<sup>1</sup> despite the fact that use of CFC 114 gas is banned internationally under the Montreal Protocol because it depletes the ozone layer.
- CFC 114 is also a global warming gas that is 10,000 – 20,000 times more potent than CO<sub>2</sub>.<sup>2</sup>
- Large quantities of CO<sub>2</sub> are released into the atmosphere due to the mining and milling of uranium, uranium enrichment for nuclear fuel, the construction of the reactor and cooling towers and the long-term cooling, storage and transportation of radioactive waste.<sup>3</sup>
- Nuclear power plants release millions of curies of radioactive isotopes, including xenon, argon, krypton, and tritium, in an unregulated fashion into the air and water of our communities.<sup>4</sup>
- A 1,000 – megawatt nuclear power plant contains as much long-lived radiation as that released by the explosion of 1,000 Hiroshima – sized bombs. Some of this radiation could be released in the event of an accident or terrorist attack.<sup>5</sup>
- Either a terrorist attack or an error (human or mechanical) could induce a meltdown at any one of the 103 currently operating nuclear power plants in the United States.
- The medical consequences of a worst case scenario for an exposed population of 10 million people could include –
  - 10,000 to 100,000 deaths due to acute radiation illness
  - 45,000 cases of acute dyspnea from radiation pneumonitis
  - 240,000 cases of acute hypothyroidism
  - 350,000 males rendered temporarily sterile
  - 100,000 women with amenorrhea
  - 100,000 children born with severe hypothyroidism
  - 1,500 children born with microcephaly
  - 3,000 spontaneous abortions
  - 28,000 thyroid cancers
  - 270,000 other malignancies<sup>6</sup>
- Current nuclear plants have produced or will produce by 2046 105,414 metric tons of thermally hot, highly radioactive waste. Multiple repositories will be required, each with limited storage capacity and each with leak potential.
- Isotopes in this waste include iodine 129 (half life 19 million years); strontium 90 (half life 28 years); cesium 137 (half life 30 years); plutonium 239 (half life 24,400 years). These elements and many others could then leak from the long term waste storage facilities or spent fuel pools with wide environmental dispersion; over time, they will bio-concentrate in the food chain by orders of magnitude at each step and could as a result induce increased incidences of cancer, leukemia and genetic diseases in future generations.<sup>7</sup>

<sup>1</sup>[www.epa.gov/tri/](http://www.epa.gov/tri/)

<sup>2</sup>Ibid

<sup>3</sup>Personal communication with Brice Smith, PhD, Institute for Energy and Environmental Research, 6935 Laurel Ave. Takoma Park, Maryland, 20912, USA

<sup>4</sup>Radioactive materials released from nuclear power plants, Brookhaven National Laboratory. Annual report 1993 NUREG/CR-2907, BNL-NUREG-51581, Vol 14 Millstone nuclear power station, Unit Nos 1, 2 and 3, Annual radioactive effluents release report, 1991-2001, Nuclear Information and Resource Services, 1424 16th St NW, Suite 404, Washington DC, 20036, August 21, 2002

<sup>5</sup>*Nuclear Madness*, Helen Caldicott, WW Norton, 1994

<sup>6</sup>Rasmussen Report, updated by Union of Concerned Scientists, 1979 [latest data available]

<sup>7</sup>[http://www.ocrwm.doe.gov/documents/feis\\_2/vol\\_2/apndx\\_a/index2a.htm](http://www.ocrwm.doe.gov/documents/feis_2/vol_2/apndx_a/index2a.htm) Within this document, look under "Tables" and view table A-8 Inventory Modules 1 and 2 spent nuclear fuel inventory

<sup>8</sup>Rasmussen Report

**As a result of this danger, we call for a moratorium on the construction of nuclear power plants, a phased withdrawal of existing plants, and a comprehensive program to conserve energy and to develop the renewable sources of energy which currently exist.**