

Share   

Plutonium Carries Serious Risks to Public Health and the Environment

March 30, 2011

Topic: [Nuclear Power](#), [Safe Energy](#)

Washington, DC - March 30, 2011 – The release of plutonium from at least one of Japan’s Fukushima nuclear reactors carries serious risks to public health and the environment, according to Physicians for Social Responsibility (PSR). Inhalation of a plutonium particle the size of a speck of dust can lead to lung cancer and death. The particle’s extensive half-life also means it will impact the environment for thousands of years if released into the soil, air or sea.

“The discovery of plutonium in the area around the Fukushima plant is another indication of the seriousness of this accident,” said Alan H. Lockwood, MD, a member of the Board of Physicians for Social Responsibility. “The dangers of such a release, to public health and the environment, cannot be overstated. If a minute amount of plutonium is trapped in the lung, it will deliver an intense dose of radiation to a very small volume of tissue for a very long time. This makes it highly carcinogenic.”

“Japan’s government and TEPCO must be completely transparent about the facts of this situation,” said Jeff Patterson, DO, immediate past president of Physicians for Social Responsibility. “In order to properly protect the public and our precious natural resources, it’s vital that they give us a full accounting of what they’ve discovered around the plant.”

There are two key public health aspects associated with the release of plutonium into the environment:

- **Plutonium Half-Life:** Plutonium-239 has a half-life of 24,200 years. If it is inhaled, it will stay lodged in the body for decades.
- **Plutonium’s Alpha Particle:** Plutonium-239 emits an alpha particle as it slowly decays. Alpha particles have huge amounts of energy, many times more than a gamma photon for example. When the energy of any source of radiation is deposited absorbed by a cell, it can cause damage to critical cell functions and the cell’s DNA. The higher the energy of that radioactive decay, the more that energy is converted into tissue damage. If a cell absorbs an alpha particle, the probability of it damaging that cell is very high. A microscopic speck of PU-239 sufficient to cause cancer.

Plutonium is one of the most toxic substances known. Virtually all plutonium is created as a reactor operates and is present in all radioactive spent fuel. The Fukushima reactor #3 is of particular concern because its fuel is a mixture of uranium and plutonium oxides (MOX fuel) and the reactor therefore contains much larger quantities of plutonium than reactors which use uranium fuel.

The risks associated with plutonium are vastly different from those associated with other radionuclides so far released from the Fukushima reactors. Iodine-131, for example, has a half-life of 8 days and can also be potentially blocked from absorption into the thyroid by taking potassium iodide. With plutonium, the half-life is 24,200 years, and there is no treatment option for blocking the effects of exposure.

The plutonium from the damaged fuel can be released into the environment through steam releases, explosive gas releases or the release of contaminated water. It will primarily have effects in the local area, but can be carried away by the wind and water and could travel outside of Japan.

“Although the latest reports suggest that the amount of plutonium released is very small, the mere finding of its presence provides further evidence of the extensive damage to the reactor core and the elevated risks posed to health by reactor accidents,” said Ira Helfand, MD, a member of the Board of Physicians for Social Responsibility.

PSR reiterates its support of the ALARA principle (As Low As Reasonably Achievable), which states that radiation exposure levels should be kept as low as reasonably achievable.

ABOUT PHYSICIANS FOR SOCIAL RESPONSIBILITY (PSR)

Founded in 1961 by physicians concerned about the impact of nuclear proliferation, PSR shared the 1985 Nobel Peace Prize with International Physicians for the Prevention of Nuclear War for building public pressure to end the nuclear arms race. Since 1991, when PSR formally expanded its work by creating its environment and health program, PSR has addressed the issues of global warming and the toxic degradation of our environment. PSR

educates and advocates for policies to curb global warming, ensure clean air, generate a sustainable energy future, and prevent human exposures to toxic substances. More information is available at www.psr.org.

All content © Copyright 2009 All rights reserved.

Physicians for Social Responsibility
1875 Connecticut Ave, NW, Suite 1012 Washington, DC, 20009 Phone: 202.667.4260 Fax: 202.667.4201

