



# Uranium and your health

**Uranium mining is but the first stage of the process of spreading nuclear contamination throughout the world. Dr Helen Caldicott, founder of the Nuclear Policy Research Institute, recently said we should not exporting uranium because “we are exporting cancer.”**

## Workers

Mining is a dangerous industry. The presence of radioactive substances makes it even more so. Despite assurances and safeguards, the nuclear industry cannot stop workers from exposure, illness and even death due to the nature of the element they are working with. There are also many instances of corporate negligence and human error leading to workers accidents, and the nature of their work means that many insurance companies may refuse to give them personal or health insurance.

The three main dangers to workers are risk of inhaling radon gas, inhaling Uranium dust and external radiation exposure. Mining uranium and mineral sands creates radioactive dust and radon gas. When breathed into the lungs, the dust and gas release their radiation at close range where it does the most damage to the lining of the lung and increases the risk of developing cancer. Radiation exposure can affect men and women’s reproductive health and is also associated with lower testosterone levels, chromosomal abnormality, skin, lung, kidney and bone cancer and bronchitis and emphysema.

Over the years the permitted levels of radiation exposure for workers and the public have dropped dramatically as research, particularly from radiation biologists, indicates harmful effects still exist at much lower exposure levels. An examination of the table on the right reveals how drastically permissible radiation exposure levels have been reduced over time. Despite these changes, workers are still expected to tolerate a higher level of exposure than others, between 20 and 5 mSv, compared to 0.1 for everyone else.

Epidemiological studies have revealed that young men working as uranium miners have a greater risk of birth defects than the general population and older men have an increased risk of cancer. Often the effects of radiation exposure can be delayed. In 2005 a retrospective study of 15 countries, the largest study of

nuclear workers ever conducted, found risk of cancer in the nuclear industry was increased even at low dose exposure.

## Risks to the wider community

**NO SAFE DOSE:  
The Australian Radiation Protection and Nuclear Safety Authority say that “...it is assumed that there is no threshold dose below which there are no effects...The lowest threshold of risk applies to the unborn child.”**

Risk is not confined to workers alone. Uranium mining continually increases the level of background radiation the community is exposed to. People’s skin, clothes and vehicles can be contaminated through being physically near the source of radioactive material.

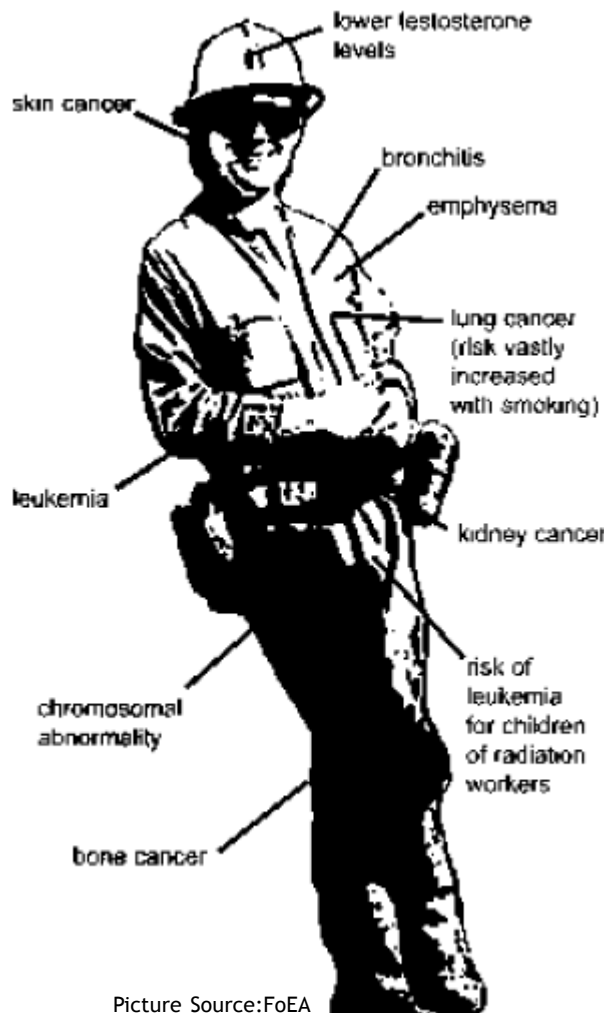
Risks are also posed by other stages of the nuclear industry including nuclear power, transport, storage of waste and of course, weapons. Many accidents, leaks, misplaced

‘orphaned sources’, and intentional releases of radiation emitting sources occur every year.

Because of potential accidents, there is a real concern about the transportation of radioactive material by trucks from the mine to the port. In February 2006 a poorly secured shipment of Cobalt 60 travelled 200km through the UK emitting gamma rays which could have burnt anyone exposed in minutes.

The insurance industry does not insure against any incidents of any nuclear activity. According to five Australian insurance companies surveyed by NFQ, insuring against loss, damage, injury or death that occurs as a result of radioactivity or nuclear activity would set the risk too high. If nuclear incidents were to occur the level of destruction could be enormous and could take years to recover. Insuring against this would be uneconomical as the premium cost would be too high. Indeed, several compensation class actions against uranium mining companies have succeeded in winning cost for hundred of uranium mine and mill workers worldwide suffering from cancer, although many communities are still living with uranium contamination.

Uranium contamination of water is the most widespread vector of



Picture Source:FoEA

radionucleotides in the environment. Contamination occurs through leaks from mine tailings ponds, nuclear power plants and storage facilities. In 2006 the US Union of Concerned Scientists made a request to the US congress to take action on the hundred of contaminated water sources effected by the US hundreds of nuclear power plants. In 2006 two of Frances waste dump that hold high level nuclear waste from their 77 nuclear power plants were found to be leaking into groundwater used by local livestock and industry. In 2005 the German Federal Institute for Risk Assessment found uranium at concentrations of up to 15 micrograms in 97% of bottled mineral water, considered unsafe, especially for children (in 2003 the US FDA set the 'safe' dose at 30 micrograms per litre). In April 2006, uranium concentrations above the Queensland governments 'safe' level was found in water at several Burdekin district schools.

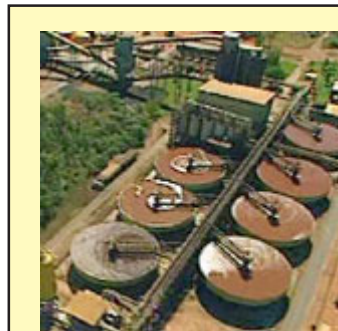
## Accidents and War

In the extreme case of war nuclear weapons such as depleted uranium shells have contaminated large swathes of Iraq, Afghanistan and former the Yugoslavia, leading to increased cancers and birth defects. In 2003 scientists from the Uranium Medical Research Centre studied urine samples of Afghan civilians and found that 100% of the samples taken had levels of non-depleted uranium 400% to 2000% higher than normal levels. Almost 2 million kilograms of radioactive uranium was dropped on Iraq in 2003 alone.

Dr Lauren Moret reports, "In my research on depleted uranium ... the most disturbing information concerns the impact on the unborn children and future generations for both soldiers serving in the depleted uranium wars, and for the civilians who must live in the permanently radioactive contaminated regions. Today, more than 240,000 Gulf War veterans are on permanent medical disability and more than 11,000 are dead. They have been denied testing, medical care, and compensation for depleted uranium exposure and related illnesses..."



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Friends of the Earth Brisbane and made possible by the  
Beyond Nuclear Initiative



*Two young children built sandcastles in "hot" mud-partially leached uranium ore-during one of a number of contamination incidents near the Ranger uranium mine in Kakadu National Park.*

*Energy Resources of Australia (ERA) pleaded guilty to three charges, including two over a 2004 contamination of the drinking water supply at the Northern Territory mine, in Darwin Magistrates Court.*

*In one incident, water used during the uranium extraction process was accidentally connected to the drinking water supply, causing twenty-eight workers to fall ill with spontaneous vomiting, gastric upsets, headaches or skin rashes after exposure to 400 times the legal limit of uranium.*

*In a second incident, contaminated vehicles left the Ranger site in late 2003, despite passing radiation clearance testing, the court heard. One bobcat was taken to a local mechanic, who unknowingly worked near partially leached uranium slurry in the vehicle for several months and two of his young children played in it.*

*ERA was fined \$150,000.*

*- Epoch Times / ABC news*

Moret continues "Even worse, they brought it home in their bodies. In some families, the children born before the Gulf War are the only healthy members. Wives and female partners of Gulf War veterans have reported a condition known as burning semen syndrome, and are now internally contaminated from depleted uranium carried in the semen of exposed veterans. Many are reporting reproductive illnesses such as endometriosis. In a U.S. government study, conducted by the Department of Veterans Affairs on post-Gulf War babies, 67% were found to have serious birth defects or serious illnesses. They were born without eyes (anophthalmos), ears, had missing organs, missing legs and arms, fused fingers, thyroid or other organ malformations."

Likewise after the Chernobyl nuclear power plant explosion in 1986, literally millions of people are still be effected by the contamination and thousands of deformed babies have been abandoned by parents who themselves are ill.

The partial meltdown in 1979 at Pennsylvania nuclear plant Three Mile Island, which released radiation into the air, resulted in the premature deaths of about 50,000 people according to epidemiological studies that fund a direct relationship between proximity to the plant and death rates, despite the government's claim that no one died as a result of the accident. Dr Ernest J. Sternglass of the University of Pittsburgh School of Medicine estimates that 19

million adults have died prematurely and that an additional million children have died as a result of radiation in the air from nuclear bomb tests, nuclear plant accidents and radiation released into the atmosphere from power plants in the US.

**Nuclear contamination is irreversible, the only way to stop it is to ban uranium mining.**



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