Senate Select Committee on Uranium Mining and Milling

Submission by Gavin Mudd (Individual)
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I am an Australian citizen opposed to the expansion and presence of the uranium and nuclear industry in Australia. I firmly believe that it is an inherently unsafe and inhumane industry, with unacceptable impacts on the environment, indigenous peoples, workers and the Australian and world public.

I would like to address the following points of the committee's terms of reference :

(a) The environmental impact of uranium mining and milling in Australia and the effectiveness of environmental protection and monitoring in relation to existing and previous Australian uranium mines.

The environmental impact of Australian uranium mining has been unacceptable. The industry has left a legacy of serious environmental degradation and contamination without full rehabilitation ever being achieved.

Previous Australian Uranium Mines

One of the world's worst cases of irresponsible uranium mining is at Rum Jungle, 64 km south of Darwin, in the Northern Territory. It is widely recognised around the world as an environmental disaster. Millions of Australian taxpayer's dollars have been spent on rehabilitation due to the poor environmental management and accountability of the mine. The area is still highly radioactive and considered a public danger.

The Mary Kathleen uranium mine in Queensland has also been the centre of controversy. It was the direct cause of a national union strike in 1976 over treatment of workers associated with the mine. Millions of dollars has also been spent on the rehabilitation of this mine.

The cost of rehabilitation has never been covered in economic analyses of uranium mines, with the end result that Australian taxpayers are forced to cover the costs of the industry's poor environmental performance. At both Rum Jungle and Mary Kathleen, no long term protection, in the order of tens of thousands of years, of the radioactive tailings and materials on site have been properly implemented, thereby leaving the opportunity for significant radioactive contamination of the surrounding environment.

Current Mines - Ranger, NT

Ranger was never designed correctly from it's start. Errors in the water balance for the mine led to the over-estimation of evapotranspiration and the under-estimation of rainfall. This has created constant water management problems on the site, with Energy Resources of Australia Pty. Ltd. (ERA) lobbying to release radioactively contaminated water to the world heritage Kakadu National Park which surrounds the mine.

There have also been many documented leaks from Ranger's tailings dam and retention ponds. Seepage is occurring from the tailings dam into the underlying groundwater system. Although this seepage is pumped by ERA from the groundwater back into the tailings dam, the process can lead to the long term contamination of groundwater, which does feed the Magela Creek floodplain. The fact that leaks such as these can occur demonstrates that design of the tailings dam system was not adequate and that environmental regulation is not stringent enough to encourage mining companies like ERA to better their environmental performance.

Research on the use of retention pond water in irrigation by the Office of the Supervising Scientist (1993) has shown that the soils of the region will retain the radioactivity of the contaminated water when used for irrigation. However, this also showed that this process will only protect the underlying groundwater system for 100 years, beyond which the radioactivity will begin to migrate to the groundwater system and become mobile. Such a process of accumulation of radioactivity in the top soil will lead to highly contaminated soil which is susceptible to wind erosion and sediment runoff, by which it can enter Kakadu National Park. The report also showed conclusively that although the soils will absorb the radioactivity for the short term, the high salinity of the water would reach the groundwater table below relatively quickly. This would lead to an unacceptable impact on the groundwater system of the region.

Olympic Dam, SA

A recent South Australian Parliamentary Inquiry into a massive leakage from the tailings retention system from the copper/uranium mine at Olympic Dam (Roxby Downs) was highly critical of many aspects of the operation. They found that :

- ✓ poor design of the tailings system that never questioned the assumption of seepage;
- ✓ poor management of the tailings system by WMC;
- ✓ an inadequately designed groundwater monitoring network;
- ✓ WMC were recalcitrant in admitting the problem with tailings seepage;
- ✓ the question of environmental impact was still uncertain, with experts questioning the assumption of no environmental impact, but calling for further investigation before firm conclusions could be reached;
- ✓ re-design of the tailings system was completely different to that of the original EIS.

Despite the damning tone of many of the findings, the recommendations did not reflect such a tone. WMC were allowed to continue management of the tailings system, despite their inadequacy and lack of commitment to environmental protection being demonstrated in the report. Guidelines for environmental review of the mine's performance were still to be set by the Minister for Mines and Energy of South Australia, a clear conflict of interest and in direct contradiction with any objectives of environmental performance.

The Roxby Indenture Act provides for the mine to change it's operations through the use of confidential Project Notices. this denies the public the right to accountability, contrary to the spirit of the numerous environmental legislation at a state and federal level. Through the use of Project Notices, WMC were able to change the mine's design and it was this considerable change in design which was found by the SA Parliament to be a contributing factor to the massive seepage from the tailings retention system of the mine.

To augment the mine's water supply (due to it's location in an arid, very dry climate), groundwater is extracted from the Great Artesian Basin (GAB) 250 km to the north east of the mine site, near Lake Eyre South. The GAB and Mound Springs are a critical source of water for surrounding stations stocking livestock. The Mound Springs are an area of great international significance due to the unique ecological and hydrogeological features found there which have evolved over many millennia. They are also of great cultural and spiritual significance to the local Arabunna people who have lived in the area for many thousands of years. Archaeological remains and relics are quite numerous around the Mound Springs sites, as they are the principal source of water in an otherwise very dry, arid climate. Since WMC began extracting groundwater from the area, some springs have dried up due to the reduction of driving pressures in the groundwater while others have significantly reduced flows. More are predicted to dry up in the near future. This has led WMC to move even further north to continue the extraction of groundwater, especially with the proposed (and likely) expansion of the mine's capacity. Thus WMC are effectively now "mining" the groundwater as well as the copper and uranium. The GAB is the oldest known groundwater system in the world, with ages thought to be in excess of three million years. The Lake Eyre region is currently under consideration for World Heritage listing due to it's wetland systems and importance as an area for migratory birds.

Current Mines - Summary

Clearly uranium mines have had a serious long term detrimental effect on Australia's environment, either through radiological contamination or through impacts on groundwater systems due to the operation of a mine. Environmental protection measures have not been effective in regulating uranium mines on their environmental performance, an environmental legacy still remains and will continue to remain when the current mines finish their planned life and are shut down.

(b) The role of the Office of the Supervising Scientist in monitoring Australian uranium mining and milling activities.

Despite the Office of the Supervising Scientist (OSS) having wide ranging legislative powers, it has never taken it's role as regulator seriously. Instead it has concentrated on researching the impact of uranium mining and milling. It is meant to do this independently, but when employees have been seen to move from a uranium mining company to OSS, such independence is seriously compromised.

(c) The health and safety implications of uranium mining and milling for workers at mining and milling sites and mining operations.

The most serious health and safety implication for all workers involved in the nuclear industry is that ***there is no safe level of exposure to ionising radiation***. Acceptable levels of radiation exposure set by the International Committee on Radiation Protection have been consistently decreasing since the dawn of the nuclear age in the 1940's. It is now a well established fact that a single exposure to a source of ionising radiation, such as uranium, can lead to the development of abnormal cell growths or cancers. There is no practical way to totally eliminate any worker's exposure to such radiation in any part of the uranium mining and milling processes.

(d) The health, safety and other effects of uranium mining and milling on communities adjacent to mine and mill sites and communities on existing or planned transport routes for uranium ore and uranium waste.

The social and cultural impacts on the local indigenous peoples near past and present uranium mining and milling sites have been significant. Indigenous people have been displaced from their traditional lifestyles and homelands, having restricted access to the areas for basic human needs such as food and water and spiritual expression.

The Roxby uranium mine has and is continuing to deplete the Mound Springs, impacting upon the local Arabunna people as well as local pastoralists. Ranger has led to pollution of the surrounding Kakadu National Park, creating problems of food and water for the local indigenous people of the area.

It has been reported before that many local and state regulatory authorities have admitted that there is no guarantee they can provide adequate protection for the Australian community if an accident were to occur from some aspect of the nuclear fuel cycle, whether that be uranium ore or nuclear submarines or other nuclear technology.

The economic effects of uranium mining have been overstated. Local indigenous people have been coerced into accepting royalties from uranium mining to pay for basic modern services such as power, education and health. Services that are a fundamental right of any Australian citizen. Why should local people be forced to accept mining payments to allow their communities to grow and develop ? It is clearly an unacceptable impact.

The uranium ore extracted in Australia's mines can only end up being used in one of two ways - as fuel rods in nuclear power plants or as highly enriched uranium in nuclear weapons. There is no alternative. The spent fuel rods are so radioactive that they continue to be radioactive for over 250,000 years. No country in the world has yet built an operating high-level nuclear waste facility to store such toxic waste. This is due to the difficulty of constructing a waste storage facility that must remain completely isolated from the biosphere for hundreds of thousands of years. There are no such facilities in Australia. The Hanford nuclear storage site in America is highly contaminated, with billions of dollars having already being spent on attempting to mitigate the pollution occurring on site. Many such infamous sites exist throughout the western and eastern world. Chernobyl is a chilling reminder of the potential for disaster that the nuclear industry brings - 32,000 have estimated to have died directly as a direct result of the nuclear explosion and hundreds of thousands of people displaced from their traditional homes. Cancer rates are continuing to rise in the area, showing the peak of the disaster has yet to be reached.

Expanding Australia's commitment to the nuclear industry through uranium mining would only serve our country poorly as we move into the next millennium.

(e) The effectiveness of Australia's bilateral agreements with countries importing Australian uranium in ensuring that Australian-sourced uranium is not used in military nuclear technology or nuclear weapons testing activities.

There have been a growing number of incidents, mostly in eastern Europe, of the smuggling of nuclear materials and technology. Although it is claimed that no weapons grade nuclear material has been reported on the black market, the mere possibility that an illicit trade could lead to terrorist groups or organised crime obtaining nuclear strike capability is a very frightening prospect. In spite of diplomatic assurances, there can be no way of verifying for certain whether uranium sold by Australia has ended up in nuclear test programs conducted by the French in the Pacific, or the US or the UK.

So, despite bilateral agreements, there is no absolute guarantee that Australian-sourced uranium is not used in military nuclear technology or nuclear weapons testing activities.

Conclusions

The nuclear industry is inherently unsafe and dangerous. It leads to the production of highly toxic radioactive waste that needs to be isolated from the biosphere for 250,000 years or more. The number of nuclear power plants has not been increasing, with many nuclear utilities opting to increase current output rather than build expensive new nuclear facilities.

With regards to nuclear weapons, the peoples of the world have clearly stated their direct opposition to such technology and doomsday weapons of mass destruction.

Alternatives to all aspects of nuclear technology exist, are considerably more environmentally friendly and are more cost effective in the long run.

This includes sources of energy such as solar, wind and tidal energy.

The uranium mining industry leads to the contamination of the surrounding environment and compromises the traditional lifestyles of local indigenous peoples. It inevitably leads to the pollution of groundwater and surface soils, jeopardising the long term sustainability of surrounding wildlife and ecosystems.

Australia, containing the majority of the world's known uranium resources, has a unique opportunity to demonstrate to the rest of the world the tragedy of the nuclear industry and lead the way in moving to more sustainable and environmentally preferable form of energy.

PROHIBIT URANIUM MINING IN AUSTRALIA AND SHUT DOWN THE CURRENT INDUSTRY IN THE GLOBAL INTEREST.

Yours Sincerely,

Gavin Mudd (Environmental Engineer, PhD Student in Groundwater Pollution)

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