

NUCLEAR & URANIUM PROJECTS IN AUSTRALIA – PAST & PRESENT

SEPTEMBER 2012 (UPDATED DECEMBER 2012)

australianmap.net brings together information, photos and videos about many of Australia's nuclear projects. The emphasis is on uranium mines and other nuclear facilities such as Lucas Heights, former uranium processing plants, and British nuclear test sites.



On the following pages are:

- **two indexes** – one for browsing entries in this file by [location](#), another to browse by [facility type](#) (or browse online at australianmap.net)
- **an [overview](#)** of issues arising from this research project
- **all the [entries](#)** from australianmap.net



The primary aim of australianmap.net is to produce a website with accurate information that is also accessible and interesting. The entries have also been collated into this PDF file. An A2-sized poster will be produced – please [email](#) if you can help fund the printing of posters or would like to order some at cost price (estimated at \$1 per poster).

australianmap.net owes its existence to the vision and IT expertise of Glenn Todd from dvize.com. Most of the entries were written by Jim Green, national nuclear campaigner with Friends of the Earth. Nectaria Calan wrote some of the South Australian entries. A small group of people will update the website entries. The Sustainable Energy and Anti-Uranium Service (SEA-US) material produced by Dr Gavin Mudd in the 1990s is an invaluable resource (as is Dr Mudd's Monash University [webpage](#)). Thanks also to Jacob Grech for his work on military sites.

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OVERVIEW

Some of the recurring patterns in Australia's nuclear history are discussed here under the following headings: children exposed to radiation; racism; struggle; unresolved radioactive contamination issues; deceit; whistleblowers; secrecy; rhetoric versus reality; lessons not learnt; and surveillance, intimidation, and police brutality.

Children exposed to radiation

Due to the lack of fencing, the contaminated Port Pirie Uranium Treatment Complex site was used as a playground by children for a number of years. The situation was rectified only after a six-year community campaign.

After mining at Rum Jungle in the NT ceased, part of the area was converted to a lake. As a crocodile-free water body in the Darwin region, the site became popular despite the radioactivity.

In November 2010, the Rum Jungle South Recreation Reserve was closed due to low-level radiation in the area. The Department of Resources advised the local council to shut down the reserve as a precautionary measure.

In 2012, damage to a security gate allowed children to enter a contaminated site near Kalgoorlie. More than 5,000 tonnes of tailings from the Yeelirrie uranium deposit, near Wiluna, were buried there in the 1980s. BHP Billiton said it would improve security.

In a 1997 report, WMC admitted leaving the contaminated trial uranium mine at Yeelirrie, WA, exposed to the public with inadequate fencing and warning signs for more than 10 years. A spokesperson for WMC said a 1995 inspection revealed the problems and also admitted that the company could have known about the problems as early as 1992. WMC said there was inadequate signage warning against swimming in a dam at the site, which was found to be about 30 times above World Health Organisation radiation safety standards and admitted that people used the dam for "recreational" purposes including swimming.

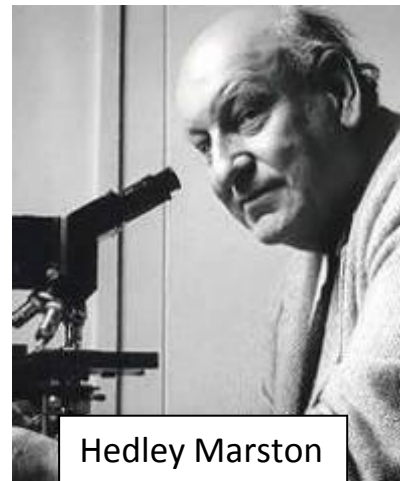
Children and adults alike have been exposed to radiation from the contaminated uranium processing site at [Hunters Hill](#) in Sydney (and children are more susceptible to radiation-induced cancers due to their growing bodies). Only in recent years has the contamination come to light after decades of deceit and obfuscation. The NSW Health Commission [covered up](#) the dangers of Hunters Hill. An internal memo in

1977 told staff to "stall and be non-committal" when responding to queries. Residents were told there was "no logical reason" to carry out radiation or health tests even though the NSW government knew that there were compelling reasons to do so.

A similar attitude has been displayed towards people living near the Lucas Heights research reactor. An internal 1998 federal Department of Industry, Science and Resources briefing document, obtained under Freedom of Information legislation, [warns](#) government officials: "Be careful in terms of health impacts – don't really want a detailed study done of the health of Sutherland residents."

Another incident with child safety concerns occurred in May 1997 when a radioactive source was [stolen](#) from an ANSTO promotional display at Menai High School. An ANSTO spokesperson said the source could be handled "quite safely but shouldn't be for long periods." The radioactive source was never recovered.

In the 1950s, the British-Australian nuclear cabal suppressed research demonstrating the contamination of grazing sheep and cattle with strontium-90 from nuclear bomb tests in Australia. Whistleblower Hedley Marston warned that proof of widespread contamination would be found "in the bones of children". The nuclear cabal and the Australian government initiated a testing program in 1957, but it was done in secret using [stolen body parts](#) from dead babies, still-borns and infants.



Hedley Marston

The Advertiser conspicuously failed to inform residents of Adelaide of the plume of radioactivity which contaminated the city after the bungled nuclear bomb test of 11 October 1956. *The Advertiser* did however run a story in 1957 titled 'Radioactive Children Are Brilliant' – a baseless theory from a British psychiatrist linking strontium 90 to 'brilliant' children.

Racism

The nuclear industry has been responsible for some of the crudest racism in Australia's history. This racism dates from the British nuclear bomb tests in the 1950s – the [Royal Commission](#) found that regard for Aboriginal safety was characterised by "ignorance, incompetence and cynicism" – but it can still be seen today.

Nuclear engineer and whistleblower Alan Parkinson said of the Maralinga test site 'clean-up' in the 1990s: "What was done at Maralinga was a cheap and nasty solution that wouldn't be adopted on white-fellas land." The hand-back of the land to Traditional Owners was dressed up as an act of reconciliation yet government literature clearly explains that the aim was to reduce "Commonwealth liability arising from residual contamination."

Aboriginal rights and interests were trampled on by the Howard government with its attempt to impose a dump in central South Australia from 1998–2004. The Kupa Piti Kungka Tjuta, a council of senior Aboriginal women from northern South Australia, fought back and the Kungkas won: "People said that you can't win against the Government. Just a few women. We just kept talking and telling them to get their ears out of their pockets and listen."



The racism associated with the federal government's plan to impose a dump on Aboriginal land in the Northern Territory is just as crude. Martin Ferguson's National Radioactive Waste Management Act 2012 allows for the imposition of a dump on Aboriginal land with no consultation with or consent from Traditional

Owners. Traditional Owner Dianne Stokes says: "Martin Ferguson has avoided us and ignored our letters but he knows very well how we feel. He has been arrogant and secretive and he thinks he has gotten away with his plan but in fact he has a big fight on his hands."

Racism in the uranium mining industry typically involves some or all of the following tactics: ignoring the concerns of Traditional Owners insofar as the legal and political circumstances permit; divide-and-rule tactics; bribery; 'humbugging' Traditional

Owners (exerting persistent, unwanted pressure); providing Traditional Owners with false or misleading information; and threats, most commonly legal threats.

The 1982 South Australian Roxby Downs Indenture Act, which sets the legal framework for the operation of the Olympic Dam copper-uranium mine in South Australia, was amended in 2011 but it retains exemptions from the SA Aboriginal Heritage Act. Traditional Owners were not even consulted. Sub-section 40(6) of the Commonwealth's Aboriginal Land Rights Act exempts the Ranger uranium mine in the NT from the Act and thus removed the right of veto that Mirarr Traditional Owners would otherwise have enjoyed. NSW legislation exempts any uranium mines in that state from provisions of the NSW Aboriginal Land Rights Act.

As one specific example of the behaviour of the uranium mining industry, a whistleblower leaked documents in the early 1980s about the Ben Lomond mine in Queensland. The documents revealed that mining company Minatome had destroyed several Aboriginal sites including one significant site possibly some 4000 years old. This site was bulldozed by the company to make way for an evaporation pond. The confidential documents revealed that Minatome had been aware of the Aboriginal sites since 1978 and was advised in an archaeological impact statement that they should be protected.

Struggle

Governments and industry often get their way yet there is a remarkable history of community struggle against unwanted nuclear and uranium projects in Australia – and no shortage of community victories.

The Kupa Piti Kungka Tjuta fought successfully against the Howard government's plan for a national radioactive waste dump. There is a strong chance that Muckaty Traditional Owners and their many supporters will defeat Martin Ferguson's plan to impose a dump on their land. Pangea Resources – the company that wanted to build an international high-level nuclear waste dump in Australia – shut its office after just two years due to overwhelming public opposition.

The uranium industry has had victories – such as the overturning of the federal ALP's policy of banning new uranium mines – but has largely failed in its efforts to develop new mines:

- ERA's aggressive pursuit of the Jabiluka uranium mine failed in the face of unanimous opposition from Traditional Owners and a large majority of the Australian population.
- ERA is continuing with plans to expand the Ranger mine but has given up on plans for heap leach mining in the face of public opposition.

- Plans to mine Angela Pamela near Alice Springs have stalled in the face of concerted community opposition.
- Koongarra in the NT has been protected from uranium mining and will be incorporated into Kakadu National Park.
- Community opposition has put an end to Marathon Resources' plan to mine uranium at Mt Gee in the Arkaroola Wilderness Sanctuary in SA.
- Plans for uranium exploration and mining at Yankalilla, near Myponga on SA's Fleurieu Peninsula, were defeated.
- Several uranium mine plans have been put on hold in recent years due to some combination of community opposition and economic circumstances (e.g. Bigrlyi / NT, Yeelirrie / WA, Lake Maitland / WA, Kintyre / WA).

Widespread anti-nuclear sentiment led the Howard government to introduce legislation banning uranium enrichment, nuclear power reactors and nuclear reprocessing. Indeed the Howard government banned nuclear fuel cycle facilities twice over – in the EPBC Act and the ARPANS Act.

Unresolved radioactive contamination issues

There have been four 'clean ups' of the Maralinga nuclear test site. The fourth was done on the cheap. Most likely there will be a fifth clean up ... and a sixth.

The contaminated Port Pirie Uranium Treatment Complex was closed in 1962. Fifty years later, the SA government says the site is "actively monitored to provide additional information to assist with the ongoing development of management plans and potential remediation."

Hunters Hill in Sydney has been the subject of controversy in recent years due to the failure to decontaminate a former uranium processing site, and the use of the site as residential land. The site was last used for uranium processing in 1915. Nearly a century later and there is an ongoing debate over site contamination and an appropriate location to store radioactive waste arising from site remediation.

Not one of Australia's former uranium mines has reached a stage where post-closure monitoring is no longer necessary. Rehabilitation and remediation of uranium mine sites has proven to be more expensive and more problematic than anticipated, with extensive time periods where ongoing management and remediation are necessary. The long-term costs – financial and public health costs – are borne by the public not the mining companies.

WMC left the contaminated uranium mine at Yeelirrie, WA, exposed to the public with inadequate fencing and warning signs for more than 10 years.

Uranium exploration in the Wiluna region in the 1980s left a legacy of pollution and contamination. Even after a 'clean up', the site was left with rusting drums containing uranium ore, and a sign reading "Danger – low level radiation ore exposed" was found lying face down in bushes.

At Mary Kathleen in Queensland, there is ongoing seepage of saline, metal and radionuclide-rich waters from tailings, as well as low-level uptake of heavy metals and radionuclides into vegetation.

At Radium Hill in SA, maintenance of the tailings is required due to ongoing erosion.

At Rum Jungle in the NT, despite extensive rehabilitation and remediation of the site, the Finniss River is still polluted with ongoing acid mine drainage.

At Nabarlek in the NT, despite rehabilitation this former mine still requires ongoing monitoring and there has been ongoing site contamination and lasting impacts on water quality.

Deceit

Australia's nuclear history reveals many instances of deceit (and obfuscation and half-truths) by scientists, scientific bodies and 'independent' regulators.

It was no surprise that the Howard government described the shambolic 'clean up' of Maralinga as 'worlds best practice' – but it was disappointing that the so-called independent regulator, the Australian Radiation Protection and Nuclear Safety Agency, made the same claim despite solid evidence to the contrary. The 'clean up' did not meet Australian standards let alone international best practice.

When the bombs were tested in the 1950s, the so-called Safety Committee [colluded](#) with politicians, bureaucrats and the establishment media to stage-manage publicity before and after the bomb tests. Numerous Australian and British scientists lent their scientific authority to dishonest government claims about the environmental and public health impacts of the tests – some were [knighted](#).

The Australian Safeguards and Non-proliferation Office (ASNO), the federal government's statutory safeguards agency, is notorious for its dishonesty. ASNO's falsehoods include claims that nuclear power does not pose a proliferation risk, that Australia only sells uranium to countries with 'impeccable' non-proliferation credentials, and that all of Australia's uranium is 'fully accounted for'. Sometimes ASNO misleads by omission, as with its failure in 2008 to tell Parliament's Joint

Standing Committee on Treaties that there had not been a single IAEA safeguards inspection in Russia since 2001.

The Australian Atomic Energy Commission (AAEC) – predecessor to the Australian Nuclear Science and Technology Organisation (ANSTO) – lied about the environmental and public health risks of the British bomb tests. The AAEC lied about the disgraceful situation at Rum Jungle from the 1950s onwards and refused to release relevant information – even to other government agencies.

More recently – in 2001 – a former head of ANSTO's Divisions of Reactors and Engineering criticised ANSTO for its "misleading public statements" and for "sugar-coating" its information in relation to plans for a new research reactor. He said: "Surely there is someone at ANSTO with a practical reactor background and the courage to flag when ANSTO is yet again, about to mislead the public."

French company Minatome undertook trial mining at Ben Lomond, near Townsville, in the early 1980s. Federal MP Bob Katter spoke about the deceit surrounding this project in Parliament in 2005. He noted that Minatome initially denied reports of a high-level radioactive spill, but then changed its story and claimed that the spill posed no risk and did not reach the water system from which 210,000 people drank.

Bob Katter takes up the story: "For the next two or three weeks they held out with that story. Further evidence was produced in which they admitted that it had been a dangerous level. Yes, it was about 10,000 times higher than what the health agencies in Australia regarded as an acceptable level. After six weeks, we got rid of lie number two. I think it was at about week 8 or week 12 when, as a state member of parliament, I insisted upon going up to the site. Just before I went up to the site, the company admitted – remember, it was not just the company but also the agency set up by the government to protect us who were telling lies – that the spill had reached the creek which ran into the Burdekin River, which provided the drinking water for 210,000 people. We had been told three sets of lies over a period of three months."

Whistleblowers

Whistleblowers have frequently provided information about accidents at Lucas Heights. One such whistleblower was Dr Arthur Tucker, who worked at the AAEC from 1964–85. He claimed that on numerous occasions his studies into staff health were obstructed or his findings kept secret. He said that he was directed to stop his studies into possible links between the use of metals such as beryllium and the lung disease sarcoidosis, and that his research results were not published. Dr Tucker also

claimed that his later attempts to reinforce his studies with similar work were thwarted as funds, staff, and facilities were withdrawn.

ANSTO whistleblowers [wrote](#) in April 2000: "The last 4 years have seen unprecedented industrial actions resulting in lost-time for ANSTO. The staff morale is exceptionally low ... because of unprecedented ineptitude at senior management level. ... The ANSTO Board has a very limited idea of what is really transpiring at Lucas Heights. For instance, the radiation contamination scare last year was only brought to the staff's attention because of a local newspaper. The incident was of such gravity, that the executive should have made an announcement over the site-emergency monitor about the incident to inform the staff. Instead the management practiced a culture of secrecy and cover-up, even to the extent of actively and rudely dissuading staff from asking too many questions about the event. ... The ANSTO management appears to be endeavoring to muzzle staff comments external to the organisation (through the use of) Acknowledgment Undertaking (forms)."

Since 2007, ANSTO's inadequate safety standards and its treatment of several whistleblowers have been the subject of [ongoing controversy and multiple inquiries](#).

In recent years workers at Olympic Dam have been warned of "disciplinary action" if caught taking photos of the mine – this after a whistleblower released photos of multiple leaks in tailings dams.

In 2010, another worker at Olympic Dam leaked documents showing that BHP uses manipulated averages and distorted sampling to ensure its official figures of worker radiation exposure slip under the maximum exposure levels set by government, and that claims made about worker safety are based on the false assumption that all underground mine workers wear protective masks.



Alan Parkinson

Two scientific whistleblowers – Dale Timmons and nuclear engineer Alan Parkinson – put vast amounts of information on the public record about the troubled Maralinga 'clean up' in the late 1990s. In the 1950s, scientist Hedley Marston tried to blow the whistle about a significant plume of radioactivity which contaminated Adelaide after a bungled atomic bomb test – but *The Advertiser* would not run the story and the nuclear cabal went to extraordinary lengths to silence Marston.

In 1976, one or more uranium industry workers provided Friends of the Earth with information which exposed the existence and activities of a [global uranium cartel](#) in which Australia was complicit. The documents also revealed shoddy environmental

practices at uranium mines, close surveillance of NGOs, and secret government advice to uranium companies about how to circumvent safeguards in order to sell uranium to non-signatories to the Nuclear Non-Proliferation Treaty.

Secrecy

AAEC employees – and personnel working on the British bomb tests – were for decades constrained by draconian legislation preventing them from public comment. The AAEC began secret uranium enrichment in 1965 at Lucas Heights, almost certainly connected to the interest in pursuing a weapons capability. The head of the AAEC – Philip Baxter – was a leading figure in the informal and eclectic group lobbying for the development of nuclear weapons or a latent weapons capability. The AAEC repeatedly provided the government with advice on the logistics and cost of pursuing a weapons capability while publicly maintaining the fiction that its work was entirely disconnected from proliferation issues.

That tradition of secrecy continues at Lucas Heights:

- A senior government bureaucrat boasted on [ABC radio](#) in 1998 that the government decided to "starve the opponents of oxygen" in relation to the planned new research reactor at Lucas Heights, to "keep them in the dark completely".
- In 1999, the President of the Australian Nuclear Association complained about the "culture of secrecy" at ANSTO.
- A 2001 Senate Select Committee said that ANSTO's "attitude seems to stem from a culture of secrecy so embedded that it has lost sight of its responsibility to be accountable to the Parliament."

The Australian Safeguards and Non-proliferation Office refuses to publicly release important information – examples include country-by-country information on the separation and stockpiling of Australian-obligated plutonium (i.e. plutonium produced from Australian uranium), and information on nuclear accounting discrepancies (Material Unaccounted For).

Olympic Dam enjoys exemptions from the Freedom of Information Act. Mine owner BHP Billiton also maintains a shroud of secrecy by threatening workers with "disciplinary action" for taking photos of the mine.

General Atomics / Heathgate Resources has a track record of secrecy in relation to the Beverley mine, such as its failure to publicly acknowledge a series of leaks before the 2002 SA state election and its refusal to release key environmental reports until the South Australian Ombudsman found that its commercial-in-confidence claims were spurious.

Rhetoric versus reality

ANSTO portrays itself as being on the leading edge of Australia's scientific endeavours. Yet a 1993 review commissioned by the federal government's Research Reactor Review found that ANSTO's scientific contributions were slight, and the CSIRO argued that more productive research could be funded for the cost of a new research reactor.

ANSTO is keen to trumpet its production of medical radiopharmaceuticals but is reluctant to acknowledge that many countries have advanced nuclear medicine programs without a domestic research reactor. ANSTO whistleblowers [said](#) in April 2000 (when the Lucas Heights HIFAR reactor was offline for maintenance): "We understand that ANSTO has been obtaining supplies of samarium from South Africa since the HIFAR shutdown in February with no dislocation, this isotope is usually manufactured by ANSTO. It is further understood that ANSTO has stopped its importation of samarium from South Africa to "prove" the need for a new reactor. If this is the case it would appear that ANSTO is orchestrating its own circumstances to ensure a new reactor."

A senior government official interviewed in 1998 on [ABC radio](#) said the government's tactic was to appeal to "the emotion of people: the loss of life, the loss of children's lives" with (specious) arguments about nuclear medicine. The same rhetoric is being used to 'sell' the plan for a nuclear waste dump on Aboriginal land in the NT. Nuclear Radiologist Dr Peter Karamoskos told [ABC TV](#) in March 2012: "Nearly all of the waste has got nothing to do with medicine ... That's a furphy that Minister Ferguson has been promulgating – and I suggest mischievously too – to get the public onside through an emotive campaign of disinformation."

The rhetoric of the uranium industry is not matched by reality. That applies not only to its environmental performance but also to its contribution to the national economy. There were waves of uranium exploration in the 1950s and '60s that were pursued with all the enthusiasm and expectation of the gold rushes. But these yellowcake rushes delivered precious little by way of jobs or export revenue.

More recently, we have been repeatedly invited to draw comparisons between Australia's uranium potential and Saudi Arabian oil riches. Yet the Australian uranium industry employs just 1760 people according to the World Nuclear Organisation (including 500 jobs in exploration and 60 in regulation). That is less than 0.02% of total Australian jobs.

Export revenue has also been underwhelming: uranium accounted for 0.32% of Australian export revenue in 2005, 0.25% in 2006, 0.38% in 2007, and 0.36% in 2008/09. For all the rhetoric about a 'nuclear renaissance', global nuclear power capacity remains stagnant and uranium's contribution to the Australian economy has weakened in the past few years – the 2010-11 contribution was 0.21% of national export revenue. The decline is due to weak prices, production problems and shortfalls at Ranger and Olympic Dam, declining production at Beverley (2010 production was considerably less than half the 2004 peak), the failure to bring new mines into production, and the Fukushima disaster.

Still we are being invited to compare Australia's uranium potential with Saudi Arabia's oil industry. Yet Saudi oil generates about 360 times as much export revenue as Australian uranium. Australia would have to export the entire world uranium demand about 36 times over to match Saudi oil revenue – clearly the comparison is absurd yet it persists.

Moreover the wealth from Australia's uranium export industry is not equitably distributed. In an assessment of the Olympic Dam royalties agreement between the SA government and BHP Billiton, journalist Paul Clearly [wrote](#) in *The Australian* that it "has robbed the state's citizens and all Australians of the opportunity to share in the profits of what will become the world's biggest mine."

The most disturbing gap between rhetoric and reality concerns the safeguards system which attempts to prevent the use of 'civil' nuclear facilities and materials for weapons production. The rhetoric holds that Australia applies "strict" safeguards which "ensure" peaceful use of Australian uranium, and that Australia only sells uranium to countries with "impeccable" non-proliferation credentials.

Those claims are far from the truth. The former Director General of the International Atomic Energy Agency, Dr. Mohamed El Baradei, noted that the safeguards system suffers from "vulnerabilities" and "clearly needs reinforcement", that efforts to improve the system have been "half-hearted", and that the system operates on a "shoestring budget ... comparable to that of a local police department".

As for the "impeccable" credentials of Australia's uranium customers, Australia has uranium export agreements with nuclear weapons states in breach of their Nuclear Non-Proliferation Treaty disarmament commitments; countries with a history of secret weapons-related research; countries that have not ratified the Comprehensive Test Ban Treaty; countries blocking progress on the proposed Fissile Material Cut-Off Treaty; undemocratic, secretive states with appalling human rights records (e.g. China, Russia); and there is now bipartisan agreement to sell uranium

to India, a country that has not signed the NPT and is engaged in an aggressive nuclear arms race in South Asia.

Lessons not learnt

Uranium exploration at Mt Gee, SA, from 1969–71 left a legacy of contamination. More recently, Marathon Resources was caught illegally disposing of mine drill waste (and much else) after further exploration at Mt Gee.

The first 'clean up' of the Maralinga nuclear test site was inadequate. The second 'clean up' was inadequate. The third 'clean up' was inadequate. The fourth 'clean up' – in the late 1990s – was [inadequate](#).

Australia supplied uranium to the UK, only to have it returned in the form of plutonium bombs which contaminated almost all of the mainland. Australia has sold uranium to Japan, consistently turned a blind eye to the poor safety record of TEPCO and other Japanese utilities, and the fallout from the Fukushima nuclear disaster has reached the Top End of Australia.

Both major political parties now want to export uranium to an illiberal regime in the Middle East – the United Arab Emirates. The last time Australia planned uranium sales to an illiberal regime in the Middle East was in 1978 when the Fraser government was [negotiating with the Shah of Iran](#) – a few months before his overthrow during the Iranian Revolution. You'd think we'd learn. Proliferation concerns are rife in the Middle East and there is a long history of covert nuclear weapons programs and military strikes on nuclear plants.

As one further illustration of lessons not learnt, the Howard government's attempt to impose a radioactive waste dump in South Australia was characterised by a crash-through-or-crash approach (including the use of compulsory land acquisition powers), racism, secrecy and deceit. The current Labor government's attempt to impose a dump in the NT has been characterised by a crash-through-or-crash approach (including draconian legislation), racism, secrecy and deceit. It seems that each new government must learn afresh that those tactics are not only objectionable but also ineffective.

Surveillance, intimidation, police brutality

[australianmap.net](#) discusses just one of the numerous examples of infiltration of anti-nuclear groups – a man who worked as an undercover agent for the Victorian police before working in the private sector including work for General Atomics / Heathgate.

Police intimidation and brutality have been a recurring theme in the struggle over nuclear issues in Australia. One of the worst examples is discussed in australianmap.net – police brutality against environmentalists and local Adnyamathanha people at the Beverley uranium mine in May 2000.

Another form of intimidation has been to threaten to sue critics of nuclear projects for defamation (for one of many examples see [this article](#) in *The Age*). Even if the threats are not pursued through the courts, they can have the effect of silencing critics.

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September 2012

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australianmap.net entries

NATIONAL

AUSTRALIAN SAFEGUARDS AND NON- PROLIFERATION OFFICE

The Australian Safeguards and Non-proliferation Office (ASNO) is the federal government's statutory safeguards agency.

ASNO is notorious for its dishonesty and unprofessionalism. ASNO's falsehoods include claims that nuclear power does not pose a WMD proliferation risk, that Australia only sells uranium to countries with 'impeccable' non-proliferation credentials, and that all of Australia's uranium is 'fully accounted for'.

ASNO is also notorious for its secrecy, such as its refusal to publicly release:

- Country-by-country information on the separation and stockpiling of Australian-obligated plutonium (i.e. plutonium produced from Australian uranium).
- 'Administrative Arrangements', which are not nearly as innocuous as the name suggests – they contain vital information about the safeguards arrangements required by Australia.
- Information on nuclear accounting discrepancies (Material Unaccounted For) including the volumes of nuclear materials, the countries involved, and the reasons given to explain accounting discrepancies.
- The quantities of Australian-obligated nuclear material (primarily uranium and its by-products) held in each country are confidential and ASNO acquiesces to that situation.
- At least some export agreements allow for further secrecy under the rubric of "state secrets".

As an example of ASNO's activities, it misled parliament's treaties committee in 2008 by claiming that "strict" safeguards would "ensure" peaceful use of Australian uranium in Russia and by conspicuously failing to tell the committee that there had not been a single IAEA safeguards inspection in Russia since 2001. The treaties committee made the modest recommendation that some sort of a safeguards system ought to be in place before uranium exports to Russia were approved, only to have its recommendation rejected.



*John Carlson, Director-General of ASNO from 1989-2010,
now a 'Visiting Fellow' at the Lowy Institute.*

More information:

- Friends of the Earth: www.foe.org.au/anti-nuclear/issues/oz/u/safeguards
- EnergyScience Coalition, 2007, 'Who's Watching the Nuclear Watchdog – A Critique of the Australian Safeguards and Non-Proliferation Office', Briefing Paper #19, www.energyscience.org.au/factsheets.html or direct download (PDF): www.energyscience.org.au/BP19%20ASNO.pdf
- US cable, 2005, 'Australian ideas to prevent a third term for IAEA DG El Baradei', <http://wikileaks.org/cable/2005/02/05CANBERRA322.html>
- 'Nuclear watchdog feels the heat over Russia deal', William Birnbauer, *The Age*, 5 October 2008, www.theage.com.au/national/nuclear-watchdog-feels-the-heat-over-russia-deal-20081004-4ty9.html?page=-1

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AUSTRALIAN RADIATION PROTECTION AND NUCLEAR SAFETY AGENCY (ARPANSA)

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) is responsible for regulation of Commonwealth facilities such as the Australian Nuclear Science and Technology Organisation's (ANSTO) nuclear research reactor site at Lucas Heights. It has other functions such as to "promote uniformity of radiation protection and nuclear safety policy and practices across the Commonwealth, States and Territories".

ARPANSA was established in the late-1990s after decades of public pressure for a genuine independent regulator. There was discussion about an independent board with overall responsibility for ARPANSA. The Howard Coalition government watered that idea down – instead we got an all-powerful ARPANSA CEO and ANSTO was allowed to participate in the interview panel for the ARPANSA CEO job. ANSTO's Communications Manager John Mulcair acknowledged in March 1999 that the ANSTO CEO's role in the ARPANSA CEO selection process was indefensible.

There is a revolving door between ANSTO and ARPANSA, further undermining the latter's independence. At times ARPANSA has employed as many as six ex-ANSTO employees, perhaps more.

ARPANSA's handling of the 'clean up' of the Maralinga nuclear test site was its first test and it was a [failure](#). Nuclear engineer Alan Parkinson wrote in his September 2000 submission to the Senate Select Committee for an Inquiry into the Contract for a New Reactor at Lucas Heights: "The newly formed Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) also has not performed particularly well in its first major assignment – the Maralinga project. Unless their performance as regulators improves, then the new reactor project will be a trail of compromises as is the case on the Maralinga project."

ARPANSA's handling of ANSTO's applications to build and operate a new research reactor was [problematic](#) in many respects.

The 2001 Report of the Senate Select Committee for an Inquiry into the Contract for a New Reactor stated that "provisions for public consultation in the ARPANS Act leave many questions unanswered."

A 2005 [Australian National Audit Office report](#) was highly critical of ARPANSA. It said:

- The Regulatory Branch's operational objectives and activities are numerous, vary considerably in scope, are not prioritised, and are insufficiently specific to be clear or assessable.
- [O]verall management of conflict of interest is not sufficient to meet the requirements of the ARPANS Act and Regulations. ... Potential areas of conflict of interest are not explicitly addressed or transparently managed.
- The bulk of license assessments – some 75 per cent – were made without the support of robust, documented procedures.
- ARPANSA does not monitor or assess the extent to which licensees meet reporting requirements. The ANAO found that there had been under-reporting by licence holders.
- ARPANSA has reported only one designated breach to Parliament. This is notwithstanding that there have been a number of instances where ARPANSA has detected non-compliance by licensees.

Problems identified by the ANAO in 2005 are still in evidence. For the past few years the adequacy of ARPANSA's regulatory performance, and ARPANSA's independence, have been repeatedly called into question in relation to a number of contamination accidents at Lucas Heights. This ongoing saga is documented on the Friends of the Earth [website](#) and a summary is included in the [australianmap.net](#) entry for [ANSTO / Lucas Heights](#). A few episodes of this saga involving ARPANSA:

- **30 March 2011** – the ABC [reports](#): "ARPANSA is under review over its handling of safety breaches at the nation's only nuclear reactor. ... The Chief Auditor is investigating how ARPANSA handled the original allegations of safety breaches and bullying at the nuclear site. ARPANSA last year released two conflicting reports on the claims at the Lucas Heights facility."
- **7 July 2011** – Parliamentary Secretary for Health and Ageing Catherine King said in a [media release](#) that the Department will review the regulatory powers of ARPANSA. This review follows an independent audit by the Audit and Fraud Control Branch of the Department of Health and Ageing into ARPANSA's handling of two safety incidents at ANSTO in September 2007 and August 2008. The audit, requested by the CEO of ARPANSA, found that there was a lack of consistency in evidence and transparency in the handling of one of the incidents.
- **19 June 2012** – A [KPMG report](#) finds that ARPANSA's interim and final reports into contamination incidents at ANSTO did not sufficiently examine statements made by a whistleblower.

More information:

- Friends of the Earth: www.foe.org.au/anti-nuclear/issues/oz/arpansa
- ARPANSA website: www.arpansa.gov.au

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[AUSTRALIAN NUCLEAR FREE ALLIANCE](#)

Formed in 1997, the [Australian Nuclear Free Alliance](#) (formerly the Alliance Against Uranium) brings together Aboriginal people and relevant NGOs concerned about existing or proposed nuclear developments in Australia, particularly on Aboriginal homelands.



The Alliance holds an annual meeting which provides an important forum for sharing of knowledge, skills and experience. Annual meetings elect a national committee which oversees the work of the Alliance for the following 12 months. A majority of the Committee members are Aboriginal people.

The Alliance helped to build the successful campaign to stop the Jabiluka uranium mine in the Northern Territory, the successful campaign against a proposed national nuclear waste dump in South Australia, and it has been involved in many other campaigns. Recent initiatives include:

- challenging the pervasive racism of the uranium mining industry;
- public education work highlighting the unsustainable impact of the nuclear industry on dwindling water resources;
- an educational poster series covering issues from radiation and health to nuclear waste;
- submissions to government inquiries and assessment processes; and
- challenging the role and legitimacy of the Australian Uranium Association's 'Indigenous Dialogue Group'.



The successful Alliance model has had 'spin-offs' such as the creation of a [Western Australian Nuclear Free Alliance](#).



2011 Alliance meeting, Alice Springs

The most recent Alliance meeting (2011) was attended by representatives of the following Aboriginal and Indigenous Nations and other organisations: Arabunna, Arrernte (central and eastern), Kadyede, Kokatha/Anterkirinya, Kokatha/Mirning, Kokatha/Narrangar, Larrakia, Mirarr, Navajo, Wajarri Yamatji, Warumungu, Warlmanpa, Warlpiri, Whagjuk/Yuet, Wilman/Bibulman, Gundjeihmi Aboriginal Corporation, Arid Lands Environment Centre, Australian Conservation Foundation, Beyond Nuclear Initiative, Choose Nuclear Free, Conservation Council WA, Environment Centre NT, Environmental Defenders Office (NT), French Network for a Nuclear Phase Out, Friends of the Earth (Adelaide, Melbourne, Sydney, Brisbane), Medical Association for Prevention of War, Mundatharra Aboriginal Corporation, National Tertiary Education Union (NSW), Public Health Association of Australia, Western Australian Nuclear Free Alliance.



Honorary Alliance Presidents – Kokatha Elder Mrs Eileen Wingfield and Maralinga veteran Avon Hudson.

More information:

- Australian Nuclear Free Alliance www.anfa.org.au
- ANFA youtube channel youtube.com/user/ANFAonline
- Western Australian Nuclear Free Alliance nuclearfree.wordpress.com

Videos:

- Alliance co-chair Peter Watts addressing the Global Conference for a Nuclear Power Free World, Japan: youtube.com/watch?v=htQrUwJORI4
- Della Rae Morrison speaking at an Indigo Girls concert: youtube.com/watch?v=nhND-PEjaks



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NEW SOUTH WALES

LUCAS HEIGHTS NUCLEAR RESEARCH REACTOR SITE

The Australian Nuclear Science and Technology Organisation (ANSTO) operates Australia's one and only nuclear reactor — the 20 MW(t) 'OPAL' research reactor at Lucas Heights, approx. 25kms south of Sydney.



The OPAL research reactor at Lucas Heights.

Successive governments have claimed that the reactor is necessary for medical and scientific applications though the evidence for such claims is very weak. The desire to continue to operate a reactor is driven by questionable foreign policy objectives (see [Jean McSorley's paper](#)).

A [non-reactor future](#) for ANSTO is viable based on a range of technologies, the most important being particle accelerators including cyclotrons. These options ought to be explored given the problems with research reactors, in particular their use in numerous nuclear weapons programs around the world, and the small risk of serious accidents (there have been 5-6 fatal research reactor accidents). ANSTO was heavily involved in the [push to build nuclear weapons in Australia](#) in the 1950s and '60s.

As at September 2012, ANSTO fully supports the government's crude, undemocratic, racist plans to [dump ANSTO's nuclear waste](#) on Aboriginal land in the Northern

Territory. Previously, ANSTO fully supported the Howard government's racist plan to impose a nuclear waste dump on Kokatha land in South Australia.

ANSTO is notorious for its dishonesty. For example, Tony Wood, former head of the Divisions of Reactors and Engineering at ANSTO's reactor plant in Sydney, has criticised ANSTO for its "misleading public statements" and for "sugar-coating" its information. Mr. Wood said in evidence to the Senate Select Committee Reactor Inquiry in 2000/01: "If I had to sum up my concerns in one sentence, it would be that for the first time in my long association with the AAEC and ANSTO I do not feel comfortable with what the organisation is telling the public and its own staff."

Mr. Wood said in verbal evidence to an ARPANSA Public Forum on 17 December 2001: "I believe that it is very important that the public be told the truth even if the truth is unpalatable. I have cringed at some of ANSTO's public statements. Surely there is someone at ANSTO with a practical reactor background and the courage to flag when ANSTO is yet again, about to mislead the public."

The Commonwealth regulator, the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), was established in the late-1990s after decades of public pressure for a genuine independent regulator. There was discussion about an independent board with overall responsibility for ARPANSA. The Howard Coalition government watered down that idea – instead the government appointed an all-powerful ARPANSA CEO. Incredibly, ANSTO was allowed to participate in the interview panel for the ARPANSA CEO job – ANSTO's then Communications Manager John Mulcair acknowledged that this was indefensible.

A culture of secrecy undermines community confidence in ANSTO. This culture has been the subject of frequent criticism, for example:

- the Senate Select Committee Inquiry into the Contract for a New Reactor at Lucas Heights, Final Report, May 2001, said: "The Committee is highly critical of ANSTO's approach to providing documents. Its attitude seems to stem from a culture of secrecy so embedded that it has lost sight of its responsibility to be accountable to the Parliament."
- The same Senate Committee also said: "The Committee is highly critical of ANSTO's attitude which seeks to make a parliamentary committee subordinate to the whims of a government agency and prevents that committee from exercising its responsibility to scrutinise the executive. The Committee therefore appreciates the frustration experienced by the Sutherland Shire Council and members of the public who have experienced a similar attitude."
- Even Liberal and National Party senators on the Senate Committee said "... that ANSTO could have been more helpful in providing certain less commercially

sensitive information to the Committee and could have been more willing to seek a compromise when sensitive material was involved."

- Ex-ANSTO scientist and later President of the Australian Nuclear Association, Dr. Clarence Hardy, complained about the "culture of secrecy" at ANSTO when giving evidence to a parliamentary Public Works Committee inquiry in 1999.
- In 2000, the Sydney Morning Herald and Greenpeace were told that to acquire two and 22 pages of information respectively under Freedom of Information requests, they would be charged \$7099 and \$6809.

Inadequate safety practices at Lucas Heights and inadequate regulation by ARPANSA

Since 2007, a saga has been unfolding regarding contamination accidents at the Australian Nuclear Science and Technology Organisation (ANSTO), ANSTO's handling of those incidents, ANSTO's treatment of whistleblowers, the handling of the matter by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), and the independence or otherwise of ARPANSA.

The saga has exposed inadequate safety practices at ANSTO and an inadequate performance by the regulator ARPANSA. The problems would not have been exposed and partially rectified if not for a number of ANSTO whistleblowers.

A few snapshots of this saga are noted below and more details can be found on the Friends of the Earth [website](#):

- **28 August 2008** – [Incident](#) at ANSTO involving a vial of molybdenum-99. An audit found that proper processes were not followed: evacuation of the area did not occur, timely communication and event reporting, thorough investigation and follow-up did not occur. The staff member in question had not completed occupational health and safety induction training or a radiation safety course.
- **June 2009** – David Reid, an ANSTO employee and staff-elected health and safety officer, was suspended in June 2009 and sacked in June 2011. He repeatedly raised concerns about contamination incidents and some of his concerns were later vindicated. ANSTO states that his suspension and dismissal were unrelated to his statements regarding safety problems at ANSTO.

5 May 2010 – An ABC [Lateline](#) report states: "ARPANSA is Australia's nuclear industry watchdog and Lateline has obtained a copy of its report into the accident. It largely supports David Reid's concerns and raises further questions about safety at Lucas Heights. ... ARPANSA's investigation found that radioactive vials are regularly dropped, something that's been tolerated for years. There have been no apparent attempts to introduce improved handling systems. Supervision and training have not been effective in delivering the standard of

safety required at the facility. And there's been a lack of management awareness about difficulties and failures at the facility."

- **1 June 2010** – ANSTO's CEO Dr Paterson [acknowledges](#) that investigations into contamination incidents found that "management arrangements in place at the time were deficient in a number of respects." Dr Paterson praises Mr Reid for his "valuable", "very useful" and "very positive" role in raising safety concerns.
- **8 February 2011** – ABC TV [Lateline](#) reports that: "Australia's workplace health and safety regulator, Comcare, has been called in to investigate the incidents. Lateline's obtained a copy of its report. It goes even further [than ARPANSA], finding that ANSTO has breached health and safety laws. It says ANSTO did not take all reasonable steps to provide and maintain a safe working environment. It didn't take all reasonable steps to inform, instruct, train and supervise ANSTO Health employees. It failed to comprehensively risk assess its radiopharmaceutical production process and it failed to notify Comcare of safety incidents."
- **28 February 2011** – The Australian [reports](#) that at least six ANSTO employees claim they were bullied by management and, in some cases, suspended from work after expressing concern about the safety of the plant's operations.
- **3 March 2011** – The Australian [reports](#) that: "Two employees of Australia's only nuclear reactor facility who were suspended after raising safety concerns will return to work in what amounts to a tacit admission by the plant's administrators that the accusations against them were overstated."
- **30 March 2011** – the ABC [reports](#): "Australia's nuclear industry regulator, ARPANSA, is under review over its handling of safety breaches at the nation's only nuclear reactor. ... The Chief Auditor is investigating how ARPANSA handled the original allegations of safety breaches and bullying at the nuclear site. ARPANSA last year released two conflicting reports on the claims at the Lucas Heights facility."
- **31 May 2011** – The Australian [reports](#) that a Government-appointed panel found that ANSTO's facilities are ageing, staff were worried that maintenance occurred only for the most urgent matters, and a more open approach to reporting health and safety problems should be adopted.
- **7 July 2011** – Parliamentary Secretary for Health and Ageing Catherine King said in a [media release](#) that the Department of Health and Ageing will review the regulatory powers of ARPANSA. This review follows the receipt of an independent audit by the Audit and Fraud Control Branch of the Department of Health and Ageing into ARPANSA's handling of two safety incidents at ANSTO in September 2007 and August 2008. The audit, requested by the CEO of ARPANSA, found that there was a lack of consistency in evidence and transparency in the handling of one of the incidents.
- **19 October 2011** – ANSTO's Dr Paterson [comments](#) on the frequency of contamination incidents at ANSTO: "In a typical month we would be talking

about between three and perhaps 10, if there had been a significant number in relation to particular production activities."

- **16 March 2012** – The Australian [reports](#) that: "[ANSTO] used findings of an inaccurate, biased and partially fabricated in-house report as the pretext to suspend – and recommend the dismissal of – two employees who raised health and safety concerns over the mishandling of radioactive materials. The conclusion comes from an investigation by the national workplace regulator, Comcare, into events surrounding an incident in September 2010 in which a third employee was contaminated with radioactive yttrium-90 at the radioisotope production facility (ARI). ... The Comcare investigation report, completed last December and obtained by *The Australian*, confirms long-running claims of bullying and cover-ups at the Australian Nuclear Science and Technology Organisation's Lucas Heights facility in Sydney's south. ... Comcare found the ANSTO investigator's report "was not impartial or reliable" [and] that the investigator included fabricated statements and "relied on hearsay and opinion from personnel ... in the form of emails, conversations and handwritten notes"."
- **19 June 2012** – A [KPMG report](#) commissioned by ARPANSA on September 2007 contamination incidents at ANSTO states that "we find that it is possible that the version of events in Mr Reid's allegations did occur." The KPMG report also finds that neither the interim report nor the final report by ARPANSA "sufficiently examined Mr Reid's allegations that a contamination incident ... occurred during the morning of 3 September 2007."

More information about ANSTO:

- Friends of the Earth webpages: www.foe.org.au/anti-nuclear/issues/oz/lh
- ANSTO – Australian Nuclear Science and Technology Organisation www.ansto.gov.au
- Jean McSorley's analysis of the foreign policy agenda driving the new reactor plan <http://pandora.nla.gov.au/pan/30410/20090218-0153/www.geocities.com/jimgreen3/mcsorley.html>
- Medical Association for the Prevention of War – www.mapw.org.au
- Sutherland Shire Environment Centre http://ssec.org.au/our_environment/issues_campaigns/nuclear/index.htm
- Jim Green's website <http://pandora.nla.gov.au/pan/30410/20090218-0153/www.geocities.com/jimgreen3/index.html>
- ARPANSA – www.arpansa.gov.au

More information about inadequate safety practices at ANSTO and inadequate regulation:

- Friends of the Earth [website](#)
- [Lucas Heights whistleblower sparks nuclear safety fears](#), ABC, 5 May 2010

- June 2010 – [Senate Estimates](#) with Greens Senator Scott Ludlam and ANSTO's Dr Paterson
- [Report slams Australian nuclear reactor](#), ABC Lateline, 8 Feb 2011
- [Safety breaches at reactor](#) The Australian, 8 Feb 2011
- [Nuclear whistleblower treated unfairly](#) The Australian, 8 Feb 2011
- [Video: Report slams Australian nuclear reactor \(ABC Lateline\)](#), 9 Feb 2011
- [Report scathing of nuclear reactor safety](#) ABC, 9 Feb 2011
- [Nuclear reactor under investigation](#) The Australian, 9 Feb 2011
- [Nuclear safety breaches concern Opposition](#), ABC, 9 Feb 2011
- [Reactor staff 'bullied over safety concerns'](#), The Australian, 28 Feb 2011
- [Backdown at Lucas Heights over safety claims](#), The Australian, 3 March 2011
- [Nuclear agency safety 'stuck in 70s'](#) The Australian, 24 May 2011
- 30 May 2011 – [Senate Estimates](#) – ANSTO
- 19 October 2011 – [Senate Estimates](#) – ANSTO
- 20 February 2012 – [Senate Estimates](#) – ANSTO
- February 2012 – [Senate Estimates](#) – ARPANSA
- [Lucas Heights nuclear reactor bullying exposed](#), The Australian, 16 March 2012
- [Third nuclear worker in bullying claim](#), The Australian, 22 March 2012
- [KPMG report](#) commissioned by ARPANSA
- 28 May 2012 – [Budget Estimates](#) – ANSTO

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JERVIS BAY – FORMER PROPOSED NUCLEAR POWER SITE

In the 1950s and 1960s, numerous submissions to federal Cabinet argued that one of the benefits of nuclear power plants would be their capacity to produce plutonium for weapons. Australia pursued plans for a power reactor at Jervis Bay in the late 1960s and then Prime Minister John Gorton later admitted: "We were interested in this thing because it could provide electricity to everybody and it could, if you decided later on, it could make an atomic bomb." (Pilita Clark, "PM's Story: Very much alive... and unfazed," *Sydney Morning Herald*, January 1, 1999.)

Site work began, and tenders from overseas suppliers were received and reviewed. However, Gorton's position as leader of the Liberal Party was under pressure and he resigned in March 1971. William McMahon succeeded him. McMahon was less enthusiastic about nuclear power than his predecessor. Reasons for this included concern over the financial costs, awareness of difficulties being experienced with reactor technology in Britain and Canada, and a more cautious attitude in relations

to weapons production. McMahon put the Jervis Bay project on hold and the Labor government, elected in 1972, did nothing to revive the Jervis Bay project.

More information:

- Friends of the Earth: www.foe.org.au/anti-nuclear/issues/oz/ozbombs
- Jacques E.C. Hymans, 2000, 'Isotopes and Identity: Australia and the Nuclear Weapons Option, 1949-1999', Nonproliferation Review, Vol.7, No.1, Spring, pp.1-23. <http://cns.miis.edu/pubs/npr/vol07/71toc.htm> or direct download: <http://cns.miis.edu/pubs/npr/vol07/71/hym71.pdf>
- Jim Walsh, 1997, 'Surprise Down Under: The Secret History of Australia's Nuclear Ambitions', The Nonproliferation Review, Fall, pp.1-20. <http://cns.miis.edu/pubs/npr/vol05/51toc.htm> or direct download: <http://cns.miis.edu/pubs/npr/vol05/51/walsh51.pdf>
- Alice Cawte, 'Atomic Australia: 1944-1990', Sydney: New South Wales University Press, 1992.
- Wayne Reynolds, 'Australia's bid for the atomic bomb', Melbourne University Press, 2000.

Videos:

- Fortress Australia – parts 5&6:
www.youtube.com/watch?feature=player_embedded&v=JZ6mV6QbvJ4
www.youtube.com/watch?feature=player_embedded&v=U6qG_zupN9k

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HUNTERS HILL – FORMER URANIUM PROCESSING PLANT

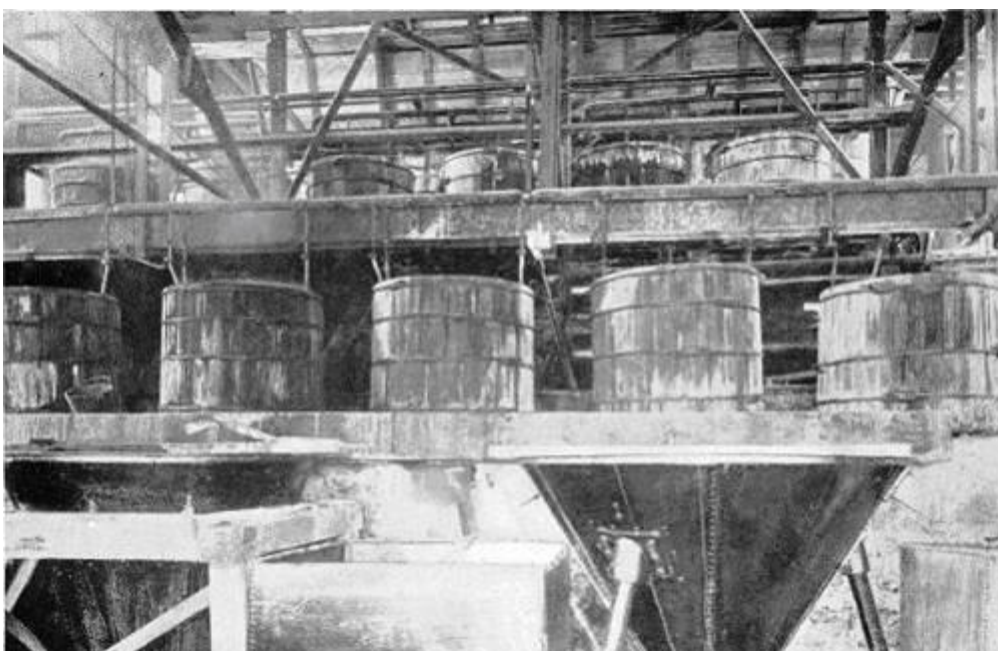
From 1911 to 1915, a small amount of uranium ore from Radium Hill in South Australia was chemically processed at Hunter's Hill, New South Wales, to extract the valuable radium. Radium is a radioactive decay product from uranium, and has a high radioactive intensity due to its half life of 1601 years. At the time, radium was worth some 300,000 pounds per ounce – compare to gold which was only 4 pounds per ounce. Although records are incomplete, it is estimated that some 2,000 tonnes of uranium ore was transported from Radium Hill to Hunters Hill and no more than 1-2 grams of radium was produced, along with several tonnes of uranium oxide as a by-product.

After abandonment in 1915, the adjacent land was converted to a tin smelter, which operated until 1964. At this time, the area was considered for residential housing

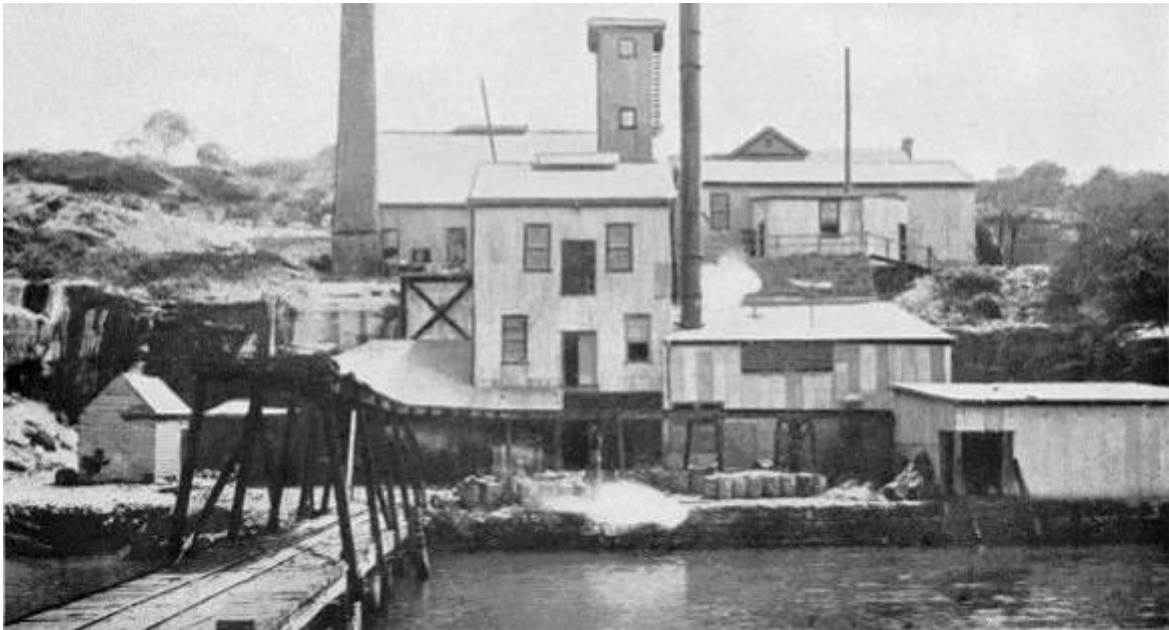
and an assessment by the Australian Atomic Energy Commission (AAEC, now ANSTO) concluded this was safe with respect to radiation risks. In the late 1970s, however, with greater public knowledge of the science behind radiation exposure, major concerns were raised about radiation risks at the site – surveys showed the obvious presence of uranium tailings from the radium processing.

The NSW Government bought several houses, demolished those on 7 and 9 Nelson Parade, but failed to undertake a complete site remediation. A NSW Upper House Inquiry in 2008 covered the history and nature of the site in detail, but there was still no public plan for remediation. In late 2011, the NSW Government began a process towards remediation, but that process has been the subject of controversy and opposition, particularly around a proposed site for storage of radioactive waste from Hunters Hill. It can be expected that of the order of 2,000 tonnes of radioactive waste would be generated by any site clean-up, with a similar radioactivity to tailings at the Ranger uranium mine.

Children and adults alike have been [exposed to radiation](#) from the contaminated Hunters Hill site and many are understandably angry about the decades of deceit and obfuscation. The NSW Health Commission [covered up](#) the dangers of Hunters Hill. An internal memo in 1977 told staff to "stall and be non-committal" when responding to queries. Residents were told there was "no logical reason" to carry out radiation or health tests even though the NSW government knew that there were compelling reasons to do so. A senior public servant told officials that radiation testing should continue "provided that in so doing we do not conspicuously draw attention to ourselves and we do not discuss the matter with other persons, such as the council, until further advised".



Above and below – the Hunters Hill site



Update:

Uranium smelter's legacy moves on

Ben Cubby, 16 December 2012, <http://www.smh.com.au/environment/uranium-smelters-legacy-moves-on-20121215-2bqb3.html>

THE controversial clean-up of a radioactive site in Hunters Hill is set to begin early next year, with any hazardous waste to be moved from the harbourside suburb to Lidcombe, the NSW government says. The contaminated properties in Nelson Parade - once the site of a uranium smelter - have been a thorn in the side of residents and governments for nearly a century.

After years of denials from successive governments about the extent of the contamination, the clean-up will now be extended to include suspected radioactive hot spots in neighbouring backyards and at the harbour foreshore.

The Premier, Barry O'Farrell, all but ruled out dumping the contaminated dirt at a Kemps Creek waste facility in western Sydney last year, in the face of protests from Penrith residents and councillors.

But the new plan involves reclassifying most of the contaminated earth as "restricted solid waste", allowing it to be trucked to Kemps Creek. Any material that is shown to be dangerously radioactive will be taken to a secure storage facility in Lidcombe, operated by the Office of Environment and Heritage.

More information:

- 'If asked about radiation, stall: official tactic', 3 March 2008, www.smh.com.au/news/national/if-asked-about-radiation-stall-official-tactic/2008/03/02/1204402275131.html

- NSW Upper House Inquiry:
www.parliament.nsw.gov.au/Prod/parlment/committee.nsf/0/8C6EFA4FA782EDC5CA25744B0007DA3B
- NSW government: Current projects: Hunters Hill,
www.lpma.nsw.gov.au/spa/our_business/current_projects
- 'Lidcombe residents gather in force to protest nuclear waste plans',
<http://parramatta-advertiser.wherelive.com.au/news/story/lidcombe-residents-gather-in-force-to-protest-nuclear-waste-plans>
- 'Radioactive homes need rules', 05 October 2009,
www.sciencealert.com.au/news/20090510-19932.html
- 'Uranium tests kept secret', inquiry hears, 4 July 2008,
<http://ntne.ws/articles/article.php?id=3227>
- 'Owners of uranium-laced land to sue Government', 11 December 2008,
www.smh.com.au/news/environment/owners-of-uraniumlaced-land-to-sue-government/2008/12/10/1228584929906.html
- 'Records raise fears over smelter site's toxic legacy', February 26, 2008,
www.smh.com.au/news/national/records-raise-fears-over-smelter-sites-toxic-legacy/2008/02/25/1203788248562.html
- 'Luxury home is too radioactive to live in', June 25, 2008,
www.smh.com.au/news/environment/luxury-home-is-too-radioactive-to-live-in/2008/06/24/1214073246944.html
- 'Home owners plan to sue after tests find radiation hot spots', April 19, 2008,
www.smh.com.au/news/national/home-owners-plan-to-sue-after-tests-find-radiation-hot-spots/2008/04/18/1208025479619.html
- 'Nuclear dump: family seeks answers on deaths', April 12, 2008,
www.smh.com.au/articles/2008/04/11/1207856832354.html?page=fullpage#contentSwap1
- 'Uranium site to be cleansed', March 27, 2009, www.smh.com.au/environment/uranium-site-to-be-cleansed-20090326-9cey.html

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WETHERILL PARK IRRADIATION PLANT

Wetherill Park is home to one of Australia's food irradiation plants. In Australia all irradiation plants use cobalt-60, a nuclear material that emits gamma rays. Herbal teas, spices and some tropical fruits are permitted for irradiation in Australia.

Irradiation changes food in ways that have not been adequately tested for safety. Irradiation depletes food and vitamins and causes the formation of radiolytic products whose effect on human health is not known.

In 2009 the irradiation of cat food was banned in Australia after nearly one hundred cats became ill and many died. This has prompted many pet food companies to review their policies regarding irradiation, recognising pet health concerns. The Australian government has yet to recognise that similar risks exist for human health.

Under Australian law, pet food, animal feed, therapeutic goods and complementary medicines are not classified as "food". These products can, therefore be irradiated with no labelling requirements. Many of these products are packaged and sold in a similar manner and on the same retailer shelves as products that are classified as "food". Consumers have no way to discern that the products fall under different regulatory bodies and therefore have differing labelling requirements.

More information: <http://foodirradiationwatch.org>

Short video on the problems with irradiation:

www.engagemedia.org/Members/kimk/videos/fifilm.mov/view

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NORTHERN TERRITORY

MUCKATY – PROPOSED NATIONAL RADIOACTIVE WASTE DUMP SITE

The federal Labor government – with Opposition support – is attempting to establish a national radioactive waste dump at Muckaty, 120 kms north of Tennant Creek in the Northern Territory. When the federal Bureau of Resource Sciences conducted a preliminary site selection study in the 1990s, based on environmental and scientific criteria, the Muckaty area did not even make the short-list as a "suitable" site for a nuclear dump. Yet Muckaty is the only site now under consideration.

A small number of Traditional Owners support the proposed dump in return for a \$12 million package likely to be used for basic services and infrastructure – services and infrastructure that ought to be available without having to host a toxic waste dump. The systematic stripping back of resources for small remote Indigenous communities is the current policy approach of both the NT and federal governments. Such a context increases the pressure on people to consider accepting long-term and high impact projects like the waste dump to maintain funding for outstations and smaller communities.

Most Traditional Owners oppose the dump and have been ignored by the government. Resources minister Martin Ferguson has refused countless requests to meet with them.



The Labor government – with Opposition support – passed the National Radioactive Waste Management Act (NRWMA) into law in March 2012. The NRWMA is draconian, overriding all state/territory laws including NT legislation which seeks to ban the imposition of nuclear dumps. The Act limits the application of federal environmental protection laws, Aboriginal heritage protection legislation, and appeal rights. It limits rights to 'procedural fairness'. It permits the establishment of a radioactive waste dump even if there is no consultation with or consent from Traditional Owners. Labor has broken all of its promises to handle this issue in an open, transparent and fair manner.

Senior Muckaty Traditional Owners have initiated legal action in the Federal Court challenging the nomination of the Muckaty site. There is also strong opposition from the NT government, trade unions, environmental and public health NGOs, church groups, etc. Councils and communities along potential transport routes have begun to voice their opposition. Thousands have attended public meetings around Australia to listen to Muckaty Traditional Owners voice their concerns.



Above and below: Muckaty Traditional Owners at a Senate Committee hearing in Darwin.



Most of the waste is at the Lucas Heights nuclear reactor site south of Sydney, operated by the Australian Nuclear Science and Technology Organisation (ANSTO). All relevant organisations – including ANSTO, the regulator ARPANSA, the Australian

Nuclear Association, and even Martin Ferguson's own department – have acknowledged that ongoing storage at Lucas Heights is a viable option.

More information:

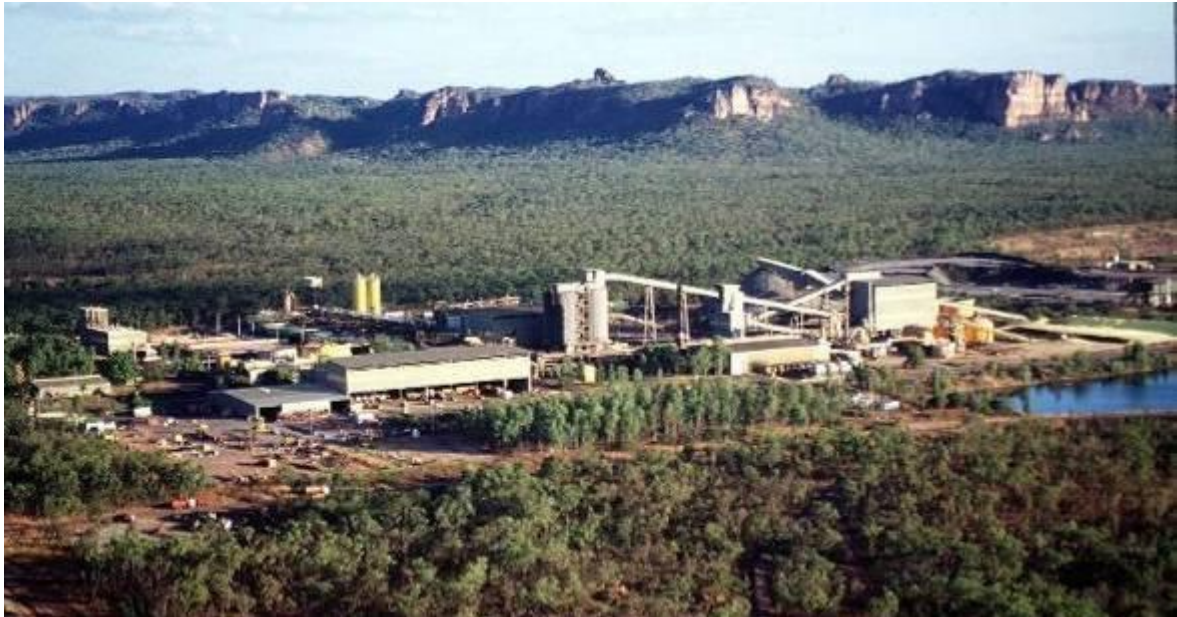
- Beyond Nuclear Initiative www.beyondnuclearinitiative.wordpress.com
- Friends of the Earth www.foe.org.au/anti-nuclear/issues/oz/nontdump
- Central Land Council, New waste dump legislation fundamentally flawed, 14 March 2012, www.clc.org.au/media-releases/article/new-waste-dump-legislation-fundamentally-flawed/
- Federal government: www.radioactivewaste.gov.au
- NSW Parliament – Joint Select Committee into the Transportation and Storage of Nuclear Waste, 2004: www.parliament.nsw.gov.au/nuclearwaste

Videos:

- Beyond Nuclear Youtube channel: www.youtube.com/user/beyondnuclear
- Muckaty Voices youtube.com/watch?feature=player_embedded&v=xcuNpT84Ovo
- From Muckaty to Melbourne – public meeting with Dianne Stokes: www.youtube.com/watch?feature=player_embedded&v=nadlwflapPg#!
- Kylie Sambo rap 'Don't Waste Muckaty' www.youtube.com/watch?feature=player_embedded&v=nadlwflapPg#!
- Public meeting in Darwin – Traditional Owners, lawyer, greenies: www.youtube.com/watch?feature=player_embedded&v=IUx_EC8Ri4g#!
- Action at Martin Ferguson's office: www.youtube.com/watch?feature=player_embedded&v=maoGI15YAeU#!
- Al Jazeera report: www.youtube.com/watch?feature=player_embedded&v=Yq6OII5R-8E#!
- Electrical Trade Union rep talk at Parliament House protest, 2011: www.youtube.com/watch?v=C8UhFdIAN9c&feature=related
- Dianne Stokes speaking in Sydney, December 2011: www.youtube.com/watch?v=lpqc0sHrL2M&feature=relmfu
- Lawyer George Newhouse speaking in Sydney, December 2011: www.youtube.com/watch?v=g13jqWUw_9c&feature=relmfu
- ABC, March 2012, 9-minute story on proposed dump with emphasis on government scare-mongering in relation to nuclear medicine: www.youtube.com/watch?v=6RTcbdLPLdw&feature=related

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RANGER URANIUM MINE



Ranger uranium mine

The Ranger uranium mine operates on the lands of the Mirarr Traditional Owners. The mine lease sits within the bounds of the Kakadu National Park and has been operating for over 30 years. In that time there have been over 200 leaks, spills and operating breaches. The Ranger mine has generated over 30 million tonnes of liquid tailings waste.



Yvonne Margarula, Senior Mirarr Traditional Owner

In 2005, mining company ERA was found guilty and fined for a contamination incident in March 2004 where 150 people were exposed to drinking water containing uranium levels 400 times greater than the maximum Australian safety standard. Twenty-eight mine workers suffered adverse health effects including vomiting and skin irritation as a result of the exposure.

In 2009, it was revealed that around 100,000 litres of contaminated water is leaking daily from the tailings dam.

In 2012 the open cut Ranger mine is close to being exhausted. However, ERA are pursuing an underground expansion to access the Ranger 3 Deeps uranium deposit. This expansion could see an exploration decline running up to 450 metres underground.

More information:

- Gundjehmi Aboriginal Corporation www.mirarr.net
- Environment Centre of the Northern Territory www.ecnt.org
- Australian Conservation Foundation www.acfonline.org.au/be-informed/northern-australia-and-nuclear-free
- Senate References and Legislation Committee, October 2003, "Regulating the Ranger, Jabiluka, Beverly and Honeymoon uranium mines" www.aph.gov.au/Parliamentary_Business/Committees/Senate_Committees?url=ecita_ctte/completed_inquiries/2002-04/uranium
- Senate Select Committee on Uranium Mining and Milling, 1997, Uranium Mining and Milling in Australia www.aph.gov.au/Parliamentary_Business/Committees/Senate_Committees?url=uranium_ctte/report/contents.htm

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JABILUKA – FORMER URANIUM EXPLORATION SITE

In the late 1970s, mining companies developed the Ranger mine in Kakadu National Park, NT, despite the opposition of Mirarr Traditional Owners.

Then the mining companies wanted to develop the nearby Jabiluka deposit. The Mirarr maintain they were tricked, cajoled and pressured into a 1982 Jabiluka 'agreement'. But the mine remained undeveloped because of the federal Labor government's no-new-uranium-mines policy from 1983–96.



Mirarr Senior Traditional Owner Yvonne Margarula with friends.

Then, under the Howard Coalition government, mining company ERA tried once again to develop Jabiluka in the late 1990s. The Mirarr led an extraordinary mass movement to stop the mine – and the Mirarr won! However the Mirarr still have to contend with the operating Ranger mine and plans to expand Ranger, as well as the likelihood that at some future date there will once again be pressure to mine Jabiluka.

More information:

- Gundjehmi Aboriginal Corporation www.mirarr.net
- Environment Centre of the Northern Territory www.ecnt.org
- Australian Conservation Foundation www.acfonline.org.au/be-informed/northern-australia-and-nuclear-free
- Senate References and Legislation Committee, October 2003, "Regulating the Ranger, Jabiluka, Beverly and Honeymoon uranium mines" www.aph.gov.au/Parliamentary_Business/Committees/Custom_Contents/SenateCommittees/ecitacte/completedinquiries/200204/uranium/report



Videos:

- Message from Yvonne Margarula: www.youtube.com/watch?feature=player_embedded&v=ODgJQKt8G4M#!

- 10-minute documentary:
www.youtube.com/watch?feature=player_embedded&v=qAHakGoSRdA
- Fight For Country:
www.engagemedia.org/Members/pipstarr/videos/Fight_For_Country.mp4/view

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ANGELA PAMELA URANIUM DEPOSIT

Angela Pamela comprises a number of adjacent uranium deposits located 23 kms south of Alice Springs. It was first identified and explored by German mining company Uranerz from 1972-1983.



The NT government in February 2008 accepted a bid by 50-50 joint venturers Paladin Energy and Cameco Australia to explore Angela Pamela. The joint venture partners undertook exploratory drilling with a view to developing an open-cut / underground uranium mine and processing mill.

Paladin [states](#) that the total inferred mineral resource is 13,980 tonnes U₃O₈, from 10.7 million tonnes of ore, 1310 ppm grade.

According to [Cameco Australia](#): "It was expected to have a conventional hard rock mill and an alkaline leaching circuit, with production possibly in 2012. However, in September 2010 for political reasons the Northern Territory government refused to

allow the Angela-Pamela project to proceed. ... In mid-2011, the two partners in the joint venture agreed that Paladin would assume control of the joint venture."

Cameco Australia further [states](#): "In November, 2010, the joint venture announced that the project would have a reduced program and budget for the rest of 2010 and the early part of 2011. The announcement took into account the uncertainty created by a policy statement made the previous month by the government of the Northern Territory that it would not allow any uranium mine to be built in proximity to Alice Springs."

[Updates](#) on the Paladin website stop at November 2010. A November 2010 Paladin [media release](#) says the joint venture partners remain committed to the project but it would continue "with a reduced program and budget for the rest of this year and the first part of 2011". The media release also said that the companies were set to close their shop front office in Alice Springs and operate from an industrial shed in Alice Springs.

Cameco Australia's regional director Jennifer Park [said](#) in February 2011: "Obviously we're in a bit of a go-slow mode given the Government's announcement last year but we are still looking at it."

The Australian – a conservative Murdoch paper – was [apoplectic](#) about the NT Labor government's decision to oppose mining at Angela Pamela. The Australian Uranium Association was also [unhappy](#).

Opponents of uranium mining at Angela Pamela were delighted but [called](#) on the NT government:

- to unequivocally rule out approving any future application for a mineral lease at the site;
- to rule out extending the current exploration lease held by Cameco as well as rule out granting a future exploration lease over the site to other miners; and
- to declare the site 'special reserved land' under [s112 of the new Minerals Titles Act](#).

As of June 2012, the NT Labor government had not taken any of those steps.

During parliamentary sittings in Alice Springs in April 2011, an NT government [motion](#) – carried 13 votes to 12 – endorsed the government's opposition to the establishment of the Angela Pamela uranium mine.

In February 2011, the NT Country Liberal Party [re-affirmed](#) its policy of supporting uranium mining. The NT News reported that many party members were furious

after CLP leader Terry Mills had followed the Labor NT Government and opposed the proposed Angela Pamela uranium mine in late 2010. A series of internal CLP emails were [published](#) by the NT News. Some CLP parliamentarians have repeatedly [changed](#) their position on uranium mining at Angela Pamela. In June 2012, CLP parliamentarian Robyn Lambley [said](#) she opposes a uranium mine "on top of the water table" although the official CLP position is to support uranium mining at Angela Pamela.

Concerns



The [Arid Lands Environment Centre](#), [Families for a Nuclear Free Future](#), [Super Raelene Bros.](#) the Alice Springs Angela Pamela (ASAP) Collective and the [Beyond Nuclear Initiative](#) have been working with [Aboriginal](#) and non-Aboriginal residents of Alice Springs to stop the proposed mine. The [Stop Angela Pamela website](#) is a useful resource.

[Concerns](#) include tailings management, dust (winds are predominantly south-easterly, causing significant dust storm activity in Alice Springs), the proximity of Angela Pamela to the water supply of Alice Springs, and water consumption. The Angela Pamela deposit sits directly above the Mereenie aquifer, the town's underground drinking water supply. Cameco claims there is no risk to water but its record of spills and accidents overseas does not inspire confidence. Nor does Paladin's record.



A Pram Jam organised by Families for a Nuclear Free Future.

Angela Pamela is located just 10 kms from four Indigenous town camps and the Indigenous boarding college. Christobel Swann, matriarch of the Pertame (Southern Arrernte) people, [said](#): "We are worried about the health of our children. If something goes wrong, white people can go back to wherever they came from, but where are Aboriginal people going to go? This is the only place we have."

The potential risks associated with dust dispersal were addressed in a letter by Dr Peter Tait from the NT Branch of the Public Health Association of Australia, published in the Australian and New Zealand Journal of Public Health (vol.35, no.6, 2011). Dr Tait states: "In conclusion, given the right wind and weather conditions, failure of dust suppression and tailings management at any Angela Pamela mine means workers at the Brewer Industrial Estate, prisoners and officers at the Correctional Facility, staff at the Joint Defence Facility Pine Gap and residents of the Iwupataka Homelands are at a low but still significant risk of dust exposure. Alice Springs itself, workers and tourists at the airport and residents at Amoonguna are at lower but not nil risk. The Iparlpa subdivision carries an intermediate risk. Grazing cattle and station workers in the surrounding country would always be at some risk."

A group of Alice Springs doctors [said](#) they would leave the town if a uranium mine goes ahead in the area. Sixteen doctors from the Central Australian Aboriginal Congress wrote to the NT and federal governments threatening to immediately leave the town if the Angela Pamela uranium mine goes ahead. Dr Koen de Decker said: "The prompt for writing the letter was borne out of concern, out of deep concern, for the implications of having a uranium mine here ..."

Don Wait, owner of Wayoutback Tours, [said](#): "What bloody idiot came up with the idea of a uranium mine in the water catchment? Governments are responsible for looking after people, not putting them in jeopardy. Travellers come here from all over the world to experience our unique untouched natural landscape. The investment in tourism in this area has been massive for a large number of years and you can ruin our reputation overnight by plonking a uranium mine right next to Alice Springs."

The Alice Springs Town Council [expressed](#) concern about Angela Pamela. A Council meeting in 2008 passed a recommendation to request guarantees from the Mining Minister.

According to Cameco, "[U]ranium in its natural state is relatively safe, with core samples handled freely by geologists and the drilling crew. Normal hygiene measures are followed, particularly washing hands after handling uranium-bearing rock before eating or smoking." (NT News, 13 May 2009.)

More information:

- Stop Angela Pamela www.stopangelapamela.org.au
- Facebook: www.facebook.com/pages/Stop-Angela-Pamela/102127189843125
- Arid Lands Environment Centre www.alec.org.au
- Families for a Nuclear Free Future <http://ffanff.wordpress.com>
- Super Raelene Bros www.myspace.com/superraelenebrothers
- Beyond Nuclear Initiative <http://beyondnuclearinitiative.com>
- SEA-US: <http://web.archive.org/web/20060622155540/http://www.sea-us.org.au/no-way/angela.html>
- A uranium hole in the heart, Daniel Clarke, 22 August 2009, www.greenleft.org.au/2009/808/41566
- Videos from a March 2009 community meeting with Northern Territory Energy minister Kon Vatskalis: <http://aliceonline.com.au/2009/04/05/alice-kon-angela-and-pamela>
- Cameco Australia www.cameco.com/australia/other_projects/northern_territory/angela/
- Paladin Energy: www.paladinenergy.com.au/default.aspx?MenuID=94
- World Nuclear Association: world-nuclear.org/info/Australia_Mines/pmines.html

A contestant called 'Angela Pamela' submitted entries in almost every prize category at the 2009 Alice Springs Show – and she cleaned up! Cameco was there as well – handing out glow-sticks.

Read Ellie Rennie's report at inside.org.au/show-day



Videos:

- Families for a Nuclear Free Future – Pram Jam:
www.youtube.com/watch?feature=player_embedded&v=9L4p9f-NkQI
- Christobel Swann, senior Arrente Matriarch and member of the Little Sisters Collective, say 'Wiya' to uranium mining near Alice Springs:
www.youtube.com/watch?feature=player_embedded&v=htjnT_bq6Rw
- Protest in Alice Springs:
www.youtube.com/watch?feature=player_embedded&v=DxZCUYn4cs
- NT Energy Minister Kon Vatskalis attended a March 2009 meeting called by opponents of Angela Pamela:
www.youtube.com/watch?feature=player_embedded&v=M-ZiL96NytY
- Super Raelene Bros launch Redgum classic 'Nuclear Kop':
www.youtube.com/watch?feature=player_embedded&v=fpMhhzkeYjk#!
- Super Raelene Brothers song 'WIYA! Angela Pamela' at
www.superraelenebrothers.com.au/paypal.html
- A JJJ video about 'WIYA! Angela Pamela' is posted at
www.myspace.com/superraelenebrothers.

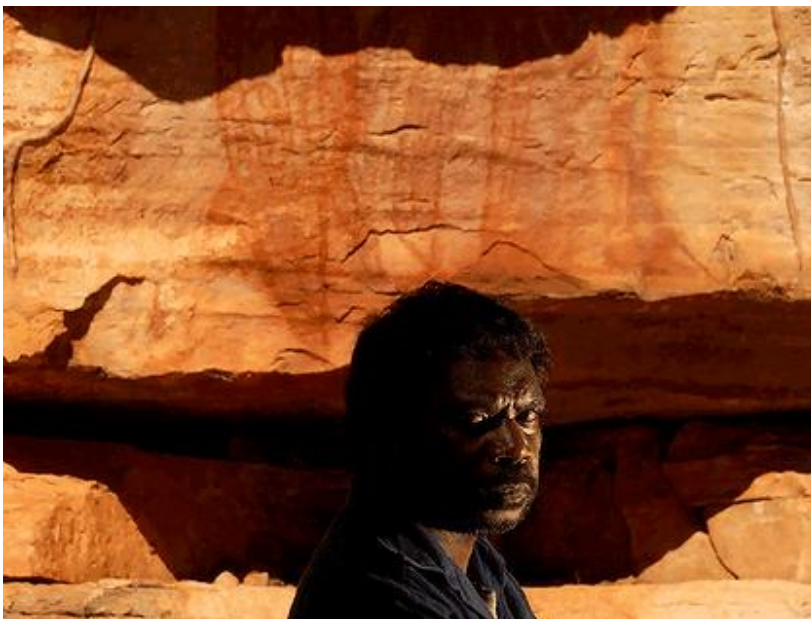
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KOONGARRA – FORMER URANIUM EXPLORATION SITE

The Koongarra uranium deposit is estimated at about 14,000 tonnes. Mining companies – most recently the French company AREVA – have been trying to mine the deposit for decades despite the opposition of Traditional Owners.

In 2010, the federal government agreed to make Koongarra part of the surrounding Kakadu National Park. In June 2011, UNESCO's World Heritage Committee voted to modify the boundaries of the Kakadu National Park World Heritage Area to include the previously excluded Koongarra area. The listing recognises Koongarra's proximity to Nourlangie Rock, a major Aboriginal rock art site. As at March 2012, legal steps are in train to finalise Koongarra's inclusion in Kakadu National Park.

Senior Traditional Owner of the Djok clan, Jeffrey Lee, travelled to Paris for the UNESCO discussion and vote.



Jeffrey Lee

Mr Lee made the following statement:

I would like to thank the World Heritage Committee for inscribing Koongarra, my country, on the World Heritage List. Thank you for talking about this and for listening to my words. I have waited a very long time for this to happen and it comes as a very happy feeling for me to see all of us looking after this place.

I am supported by all the Bininj clans of Kakadu and most particularly by neighbouring clans such as the Mirarr People, through their representative body the Gundjeihmi Aboriginal Corporation, representatives of which are here with me at this meeting.

I want to ensure that the traditional laws, customs, sites, bush tucker, trees, plants and water at Koongarra stay the same as when they were passed on to me by my father and great-grandfather. Inscribing the land at Koongarra as World Heritage is an important step in making this protection lasting and real.

More information:

- www.world-nuclear.org/info/Australia_Mines/pmines.html#koongarra

Videos:

- Jeffrey Lee, 2011: www.youtube.com/watch?v=izRf3dv9BWc
- Jeffrey Lee speaking in 2008:
www.engagemedia.org/Members/theweathergroup_U/videos/Jeffrey02_Mining-desktop.m4v/view
- ABC: www.youtube.com/watch?v=nEjGgd8iMvw&feature=related
- Environment Minister Tony Burke, and footage of Koongarra:
www.youtube.com/watch?v=csRwbt9Fug0

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RUM JUNGLE – FORMER URANIUM MINE

Rum Jungle is about 64 kilometres south of Darwin in the Northern Territory, among the headwaters of the East Finniss River.

The Rum Jungle mining project operated from 1954 to 1971. Processing of uranium and copper continued from stockpiles until April 1971 although uranium ore had last been extracted in 1963.

A total of 863,000 tonnes of uranium ore were processed, the average grade was 0.28-0.41%, and 3,520 tonnes of U₃O₈ were produced from various Rum Jungle deposits – White's (U-Cu-Pb), Dyson's (U), Rum Jungle Creek South (U), and Mt Burton (U-Cu).



Entrance to the Rum Jungle mine.

History

Uranium and copper mineralisation was discovered in the Rum Jungle area in 1869 by Goyder's survey party, but it was not recognised as such until 1949. In April 1948 an announcement in the Commonwealth Gazette stated that rewards would be paid for the discovery of uranium in Australia and its territories. The maximum amount of the reward was fixed at £25,000. Time Magazine reported on 15 September 1952:

From Darwin to Melbourne, the word had got around that Australia's vast, tropical Northern Territory was bursting with uranium. Hundreds of adventurous young men from Australia's overcrowded southern cities, plus many an old gold fossicker from West Australia, were making their way up

through the desert by jeeps, horse-drawn wagons, on horseback, even in airplanes. In Darwin, Geiger counters were sold out as fast as they came into the store. One newspaper advertised counters: "Find Uranium and Make Your Fortune." The excitement had begun at Rum Jungle, 60 miles south of Darwin, where a prospector named Jack White uncovered a three-mile-long lode of uranium-bearing ore in 1949.

In March 1952, representatives of the United States Atomic Energy Commission (USAEC) and of the United Kingdom Atomic Energy Authority (UKAEA) visited Australia to discuss, among other things, the development of the Rum Jungle uranium field. This led to the provision of funds to develop the Rum Jungle project by the Combined Development Agency and the signing of an exclusive supply contract between the Commonwealth and the CDA. The uranium produced between the commencement of production in 1954 and January 1963 was used to fill the supply contract with the CDA for use in nuclear weapons.

The Commonwealth entered into a contract with the Consolidated Zinc Group in August 1952 to develop and operate the Rum Jungle project. In the same year Consolidated Zinc formed a wholly-owned subsidiary, Territory Enterprises Pty Ltd (TEP) to manage all aspects of the operation including exploration, mining and milling. (In 1962, Consolidated Zinc merged with the Rio Tinto Mining Company of Australia Ltd to form Conzinc Riotinto of Australia Ltd or CRA.)





White's Open Cut and Rum Jungle treatment Plant, during the late 1960's.
Completed to a depth of 350 feet in 1958.

The town of Batchelor was redeveloped to service the mine. Batchelor became a booming township with a power station, acres of suburban homes, a hotel, a community centre, and a population of 500. Many workers lived in seriously [sub-standard conditions](#). In 1956, a Melbourne newspaper ran a front-page story describing the conditions at the "Rum Jungle Hell Hole". [Security](#) at the mine site was tokenistic.

In addition to supplying the CDA, some uranium was put on the open market, and some uranium was stored at Lucas Heights in southern Sydney. About 2,000 tonnes of yellowcake was stockpiled by the time the mine closed in 1971. In 1994, 239 tonnes of Rum Jungle uranium oxide were sold to a US utility, leaving 1814 tonnes still stockpiled. The remainder was sold in subsequent years.

Uranium ore from other deposits – including the Eva deposit near the Queensland border, and Adelaide River – was processed at Rum Jungle.



Prime Minister Robert Menzies opens the mine processing plant in 1954.

Environmental mismanagement

From the start of processing operations in 1954, the discharge of tailings was unconstrained and the solids settled out, while the acidic supernatant liquors drained into 'Old Tailings Creek' and thence to the East Branch of the Finniss River, 0.8 km to the west. Barren liquors from copper launders constructed between the plant site and the Old Tailings Dam also flowed into the East Branch via Old Tailings Creek.

Thus in the early period of operation, there was not even a dam wall to contain the tailings, which were simply discharged onto a flat plain and allowed to drain into the river. Successive walls were then built and washed away by floods until, in 1961, the tailings were discharged into disused (but presumably quite porous) open-cuts rather than onto the flat plain.

The tailings were redirected to Dyson's Open Cut in 1961, the copper launders were relocated from the Old Tailings Dam area to a site adjacent to Dyson's Open Cut, and a system of controlled discharges was introduced. Under this system, spent process liquors were collected during the Dry Season, in two dams fitted with sluices that were constructed across the East Branch of the Finniss River. With the onset of the Wet Season, fresh water entered both these dams and a relatively unpolluted tributary which was also dammed (called the Sweet Water Dam). When the river flooded, all dams were breached, releasing water to the East Branch through the diversion channel and White's Open Cut. At that time, it was considered that this procedure would provide sufficient dilution to allow safe discharge of water. More recent calculations have shown that the policy of "safe dilution" could not have worked.

The practice was abandoned between 1965 and 1968 when tailings were directed to White's Open Cut, the walls in the riverbed were breached, spent process liquor (called raffinate) was directed either to the copper heap leach site or directly to White's Open Cut, and partial recycling of raffinate commenced in the treatment plant. This method of effluent disposal continued until operations ceased in 1971.

The 1970 report of a Senate Select Committee on Water Pollution said: "One of the major pollution problems in the Northern Territory is that caused by copper and uranium mining at Rum Jungle. The strongly acidic effluent from the treatment plant flows via the East Finniss River into the Finniss River, making the water unsuitable for either stock or human consumption for a distance of 20 river miles. Vegetation on the river banks has been destroyed and it will be many years before this area can sustain growth."

The mining company Conzinc (now part of the Rio Tinto Group) has consistently denied any responsibility for rehabilitation.

The Australian Atomic Energy Commission, the Commonwealth government nuclear agency based at Lucas Heights, lied about the extent of the environmental damage at Rum Jungle, obfuscated, and refused to release relevant information to other government bodies (see [SEA-US](#) and [The Age 1/12/76](#)).

The saga also reveals complicity between government and companies. In June 1971, Mr R. E. Felgenner, First Assistant Secretary, Northern Territory Economic Affairs, presented to his Minister a submission in which he sought approval to investigate the situation at Rum Jungle. In the submission he said: "Early in 1962 the Minister for Territories informed the Minister for National Development that, while the source of pollution has been established beyond doubt and constituted an offence against the provisions of the Control of Waters Ordinance, he was reluctant to proceed against the companies for reasons of their association with the Commonwealth in the venture."

Rehabilitation and recreation

An initial attempt to clean up Rum Jungle was made in 1977, which led to the setting up of a working group to examine more comprehensive rehabilitation. A \$16.2 million Commonwealth-funded program got under way in 1983-88. A supplementary \$1.8 million program to improve Rum Jungle Creek South waste dumps was undertaken in 1990-91.

One of the principal problems associated with rehabilitating the Rum Jungle Creek South (RJCS) open cut was that the area was converted to a lake after mining

ceased, and as the only crocodile-free water body in the Darwin region, the site quickly became very popular with locals and Darwin residents as a recreation reserve. The mine area was characterised by high external gamma levels, alpha-radioactive dust and significant levels of radon daughters in prevailing air. It is known that the rates of radioactivity in the area were much higher after mining than before. Based on these post-mining radiation levels, it had been estimated that annual doses of some individuals were about 5 millisieverts (mSv), the Australian limit for public exposure up until the late 1980s. As the new limit was about to be dropped to 1 mSv per year, rehabilitation was required. As a result, a supplementary \$1.8 million program to improve Rum Jungle Creek South waste dumps was undertaken in 1990.

In 2003, a government survey of the tailings piles at Rum Jungle found that capping which was supposed to help contain radioactive waste for at least 100 years had failed in less than 20 years. The NT and federal governments continued to argue over responsibility for funding rehabilitation.

In November 2010, the Rum Jungle South Recreation Reserve was closed due to low-level radiation in the area. The Department of Resources said tests at the waste rock pile at the reserve detected low-level radiation. It advised the local council to shut down the reserve as a precautionary measure. The Environmental Research Institute of the Supervising Scientist was tasked with carrying out a comprehensive assessment of the site. (Click [here](#) and [here](#) for more information.)

On 7 October 2009, the Commonwealth and Northern Territory Governments entered into a four-year \$7.05 million [National Partnership Agreement](#) on the management of the former Rum Jungle Mine site. The purpose is to undertake various studies to inform the development of an updated rehabilitation strategy, which may then lead to future rehabilitation works under new arrangements.

In other words, the saga of environmental pollution at Rum Jungle continues, 41 years (and counting) after the closure of the mine in 1971.



Heavily polluted section of the Finnis River.

Recent mining near Rum Jungle

In the 2000s, Compass Resources pursued [plans](#) to mine copper, cobalt, nickel, lead and silver near Rum Jungle (and near the town of Batchelor). Compass acknowledged that it was also interested in mining uranium at the nearby Rum Jungle site, over which it held a lease, including the Mount Fitch resource estimated at 4050 tonnes U3O8. Compass commissioned the Browns Oxide mine – about 1 km west of the former Rum Jungle complex – to mine cobalt, nickel and copper mining. The first shipment of copper left the mine in October 2008. But costs had blown out, cash had run out, the company was placed under administration in January 2009 and the Browns Oxide mine was put under care and maintenance (see [Friends of Compass Resources](#) and [The Australian](#).) In May 2009, a decision was made to liquidate Compass Mining and place Compass Resources under a Deed of Company Arrangement.

Chinese company HNC (Australia) Resources proposed to develop the Area 55 Oxide Project to mine copper, cobalt and nickel and to process it at the nearby Browns Oxide plant. HNC also had an interest in restarting mining at Browns Oxide (it previously had a Joint Venture agreement with Compass). Those plans hit [hurdles](#) but may yet be revived.

Updates:

Radiation hot spots at NT lake

Northern Territory News, 3 December 2012, by Alison Bevege

http://aap.newscentre.com.au/acf/121204/library/nuclear_issues/30004975.html

RADIATION hot spots many times higher than background levels were found at a popular recreational lake downstream from one of Australia's worst polluting mines yesterday.

Monash University senior environmental engineering lecturer Gavin Mudd found radiation levels as high as four microsieverts in spots around the carpark and barbecue areas of Rum Jungle Lake near Batchelor, 100km south of Darwin. School children come on excursions to the lake for canoeing and kayaking while locals use it for swimming and relaxing.

Dr Mudd said the background radiation level was 0.1 microsievert.

A conventional chest X-ray is 20 microsieverts according to the Australian Nuclear Science and Technology Organisation.

Dr Mudd, who was testing the site with a geiger counter for the Environment Centre NT, said there was no immediate risk to the public but the site might need warning signs.

"It wouldn't be exposing the public to the limits in a couple of hours ... but it is significant," he said.

The lake was closed for 18 months as a precaution but re-opened in September.

Batchelor resident Bruce Jones, 70, often swims in the lake and said he was not worried. "We've got a letter saying it's all OK out here," he said. "They've opened it to swimming and the kids are coming from all the schools."

Uranium was mined by the Federal Government at Rum Jungle from 1952 until 1971.

It did not clean up the site until 1983, but the clay covers put on the tailings heaps failed soon after being installed. Heavy metals and uranium have been leaking out ever since.

In September, the NT Government called for tenders for a new cover design to contain leaking.

Clean-up not on federal agenda

NT News, 11 Dec 2012

THE Federal Government has refused to commit to fixing radiation pollution it left in the Northern Territory after mining uranium at Rum Jungle. Radiation levels are so high that camping has been banned at the nearby Rum Jungle recreational lake for public health reasons. The lake is popular with school excursions and is considered safe for day trips, including kayaking and swimming.

The Federal Government began mining uranium in 1953 near Batchelor, 100km south of Darwin, for use by the UK and the US in nuclear weapons and for research. Mining ceased in 1971, leaving one of the worst polluting legacy mines in the Territory. In the 1980s efforts made to clean up the site failed.

A four-year study of the site is due to end in June. But the Federal Government has refused to commit to fixing the site once the study is complete. Resources and Energy Minister Martin Ferguson refused to commit to spending the estimated \$100 million needed to clean up the site when questioned by the NT News.

Shadow Environment Minister Greg Hunt also refused to commit to action should the Coalition be voted in at the next election. "We will await the outcome of that report before making a commitment," Mr Hunt said.

More information:

- NT government info and photos: www.nt.gov.au/d/rumjungle/index.cfm?header=Rum%20Jungle%20Home
- NT government info (PDF): [www.nt.gov.au/d/rumjungle/Content/documents/historic/Discovery and Exploration.pdf](http://www.nt.gov.au/d/rumjungle/Content/documents/historic/Discovery_and_Exploration.pdf)
- information and recent photos: <http://mininglegacies.org/mines/northern-territory/rum-jungle>
- SEA-US archive: <http://web.archive.org/web/20060423175610/http://www.sea-us.org.au/oldmines/rumjungle.html>
- [http://en.wikipedia.org/wiki/Rum Jungle, Northern Territory](http://en.wikipedia.org/wiki/Rum_Jungle,_Northern_Territory)
- Batchelor Museum (info and photos): <http://batchelormuseum.org.au>
- lots of photos: <http://web.archive.org/web/20060430183833/http://www.sea-us.org.au/oldmines/rj2see.html>
- lots of news articles from 2006-2010 about the resumption of mining near Rum Jungle: www.ntne.ws/articles/article.php?section=rumjungle
- Recreation reserve closed due to radiation, ABC, 12 November 2010, www.abc.net.au/news/2010-11-12/recreation-reserve-closed-due-to-radiation/2334918

Articles about pollution and rehabilitation:

- Mudd, G.M. & Patterson, J, 2010, 'Continuing Pollution From the Rum Jungle U-Cu Project: A Critical Evaluation of Environmental Monitoring and Rehabilitation'. [Environmental Pollution](http://www.environmentalpollution.com), 158 (5), pp 1252-1260. Available from Gavin.Mudd@monash.edu
- Taylor, G., Spain, A., Nefiodovas, A., Timms, G., Kuznetsov, V., Bennett, J. (2003), "Determination of the reasons for deterioration of the Rum Jungle waste rock cover". Australian Centre for Mining Environmental Research, [www.inap.com.au/public_downloads/Research Projects/Rum Jungle Report.pdf](http://www.inap.com.au/public_downloads/Research_Projects/Rum_Jungle_Report.pdf)
- Mudd, G.M., 2000, Remediation of Uranium Mill Tailings Wastes in Australia: A Critical Review. Proc. "2000 Contaminated Sites Remediation Conference", CSIRO Centre for Groundwater Studies, Melbourne, VIC, December 4-8, 2000, Vol. 2, pp 777-784, <http://users.monash.edu.au/~gmudd/files/2000-ContSites-UMillTailings.pdf>



Aerial view of old tailings dam after rehabilitation, May 1986.



Whites overburden heap before rehabilitation, June 1983.

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NABARLEK – FORMER URANIUM MINE

Queensland Mines mined the Nabarlek uranium deposit for four months in 1979. Milling of stockpiled ore commenced in 1980 and produced 10,858 tonnes of uranium oxide up to 1988 with sales to Japan, Finland, France, South Korea and the USA for civil power generation.

The average grade was 1.84% U₃O₈, 763,000 tonnes of ore were milled, and a total of 2.33 million tonnes of ore and waste rock were excavated.

There is [ongoing uranium exploration](#) in the Nabarlek region. In early 2008 Uranium Equities Limited bought Queensland Mines, thereby acquiring the Nabarlek lease, and has developed plans to further explore the lease. A new Mining Management Plan was submitted and an exploration authorisation granted on 28 May 2008.

Traditional Owners

Altman and Smith state in a detailed [briefing paper](#): "All told, in the period 1979-93 approximately \$14 million was paid to Aboriginal people in the West Arnhem region with respect to the QML [Nabarlek] mine and it now appears clear that few resources have been utilised for long-term investments that would allow the creation of an economic base for future generations."

Jon Land [wrote](#):

Queensland Mines' dealings with the Oenpelli people were deplorable. In June 1970, the company dug exploration holes without permission, desecrating the Green Ant sacred site. Repeated actions such as this prompted the solicitor representing the Oenpelli to write to the NT administrator in 1972, stating: "Our clients are most concerned that Queensland Mines Ltd has in the past shown a complete disregard for their traditions and way of life ... and has shown no willingness to cooperate or even communicate with our clients."

Other than direct confrontation, the company "communicated" its intent to mine by attempting to buy off the traditional owners with offers of sums which rose from a paltry \$5000 in 1970 to \$3 million by February 1974. When these offers were refused, Queensland Mines launched a malicious media campaign.

In a submission to the Ranger inquiry on uranium in August 1976, the Oenpelli Tribal Council told the commissioners that "If Oenpelli had the power to make

the final decision, it would oppose mining". Despite the lengthy and determined opposition of the Oenpelli, Queensland Mines was finally given approval to go ahead in 1978.

Unions and ALP policy

In August 1980, the Darwin branch of the Waterside Workers Federation refused to load Nabarlek yellowcake. In March 1981, the Darwin branch of the Seamen's Union of Australia voted unanimously against carrying yellowcake. A combined union picket to prevent the shipment of yellowcake from Darwin was initiated in October 1981 and lasted six weeks until the ACTU executive stepped in and argued for the bans to be lifted.

Jon Land [wrote](#): "In a move designed to maintain some credibility in the eyes of the anti-uranium movement and prevent disgruntled members leaving the party, [Prime Minister Bob] Hawke announced that Labor would maintain its ban on the export of uranium to France. The policy, which had been adopted at the 1982 national conference, stated that the sale of uranium to France could only be contemplated when that government ceased all nuclear testing in the Pacific. This had a significant impact on operations at Nabarlek as France was the major purchaser of the uranium mined and processed there. ... But within six weeks of the 1986 conference the policy was ditched, supposedly to meet the needs of the August budget. ... With the restriction on sales of uranium to France lifted, Queensland Mines was able to sell its 2600-tonne stockpile by 1989 and the mine ceased. The company then attempted to have prospects it controlled outside the original Nabarlek lease included as part of the three mine policy. This was opposed by local Aborigines and denied by the federal ALP government."

Corporate shenanigans

Mudd [details](#) the corporate shenanigans surrounding the Nabarlek mine. A few excerpts follow:

It was not until August 12, 1971, that the new Queensland Mines board and the public learned that the reserves amounted to only 8,932 tons (8,103 tonnes U3O8), some of which was at 16 lb per short ton and some at 240 lb. This was only one-sixth of the amount stated as indicated reserves a year before. The news shocked financial circles, despite persistent rumours that the mine might be downgraded. ...

The Rae Committee concluded: 'On each of these selling occasions Mr Hudson [Roy Hudson, chair and managing director of Queensland Mines] was privately

aware of developments which widened the glaring discrepancy between the ascertained geological facts and state of confident belief in the market to which he sold the shares. Each of the selling transactions coincided with an advance in his personal understanding of the discrepancy. Mr Hudson's explanation of the sales does not alter the grave impropriety of the share dealings. This is a case of 'insider trading' with a peculiarly objectionable twist. The person who made profits from his possession of the information that made a mockery of the market's belief in his company's shares was also one of the persons responsible for misleading that market for a period of nearly a year.'

Environmental impacts

A few environmental low-lights from Nabarlek (see [Mudd](#) for more detail):

- 1980, July 22 and 26 – The pipeline returning water from the stockpile runoff pond to the mill ruptured along a weld seal. Less than 30,000 litres of water escaped.
- 1981, March 7 – Water flowed from the Restricted Release Zone (RRZ) after heavy cyclonic rain; radioactive material was released from the plant runoff pond into a nearby creek. The infringement wasn't reported to the Office of the Supervising Scientist (OSS) or the NT government by the company, and only came to light four months afterward following media reports, though the environmental requirements demand immediate notification. When the company presented a report to OSS, it contained contradictions and insufficient information. OSS expressed concern over monitoring of water quality, concentrations of radioactive dust, and lack of response from Queensland Mines over plans for decommissioning, dewatering and covering the tailings, and rehabilitation at the end of the project.
- 1982, April 1 – Two leaking joints were discovered on a pipeline between the Waste Rock Runoff Pond and Evaporation Pond No 2 and repaired immediately. The quantity of runoff water estimated to have leaked was 40,000 – 80,000 litres.
- 1983, March 4 – A small leak from a tailings line in the plant area was detected during routine surveillance and reported by the company. Less than 1,000 litres of tailings sprayed over the top of the retaining bund to a distance approximately three metres outside the RRZ.
- 1983, Nov 17 – A split in a pipe from a stockpile runoff pond to the mill resulted in less than 500 litres of liquid being sprayed over the bund. The pipe was replaced.
- 1984, March 27 – A small quantity of tailings in suspension (about 300 litres of liquor, 25% solid tails) sprayed from a pipeline outside the Nabarlek RRZ.

- 1987 – Tree death started in the area called the Forest Irrigation Area. Eventually the whole ten hectares of the irrigation area lost their trees.
- 1989, August 3 – A break occurred in a T-joint from the main irrigation plot 8. An estimated 10,000 litres of Evaporation Pond 2 water escaped the RRZ.

Rehabilitation

Nabarlek is said to be the only mine which has gone through the entire cycle of commercial mining, mine closure and rehabilitation, but it still requires ongoing monitoring, which is carried out by government and funded by taxpayer. There have been ongoing site contamination and lasting impacts on water quality. Problems include significantly elevated gamma radiation rates compared to pre-mining as well as failure to achieve the reductions in radon emanation predicted for rehabilitation (Mudd, 2008).

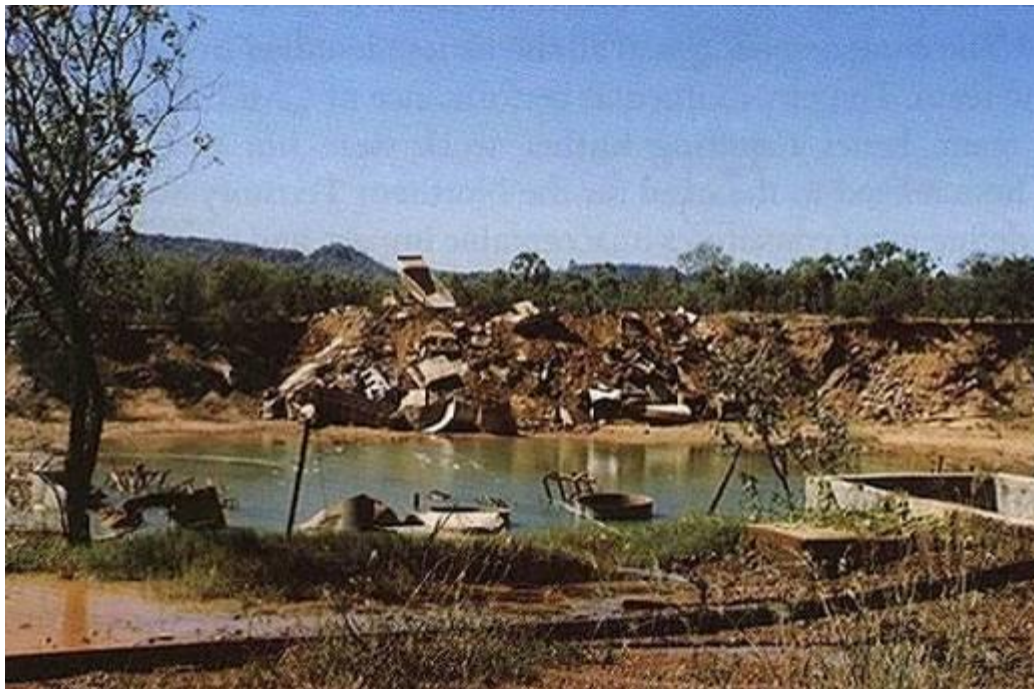
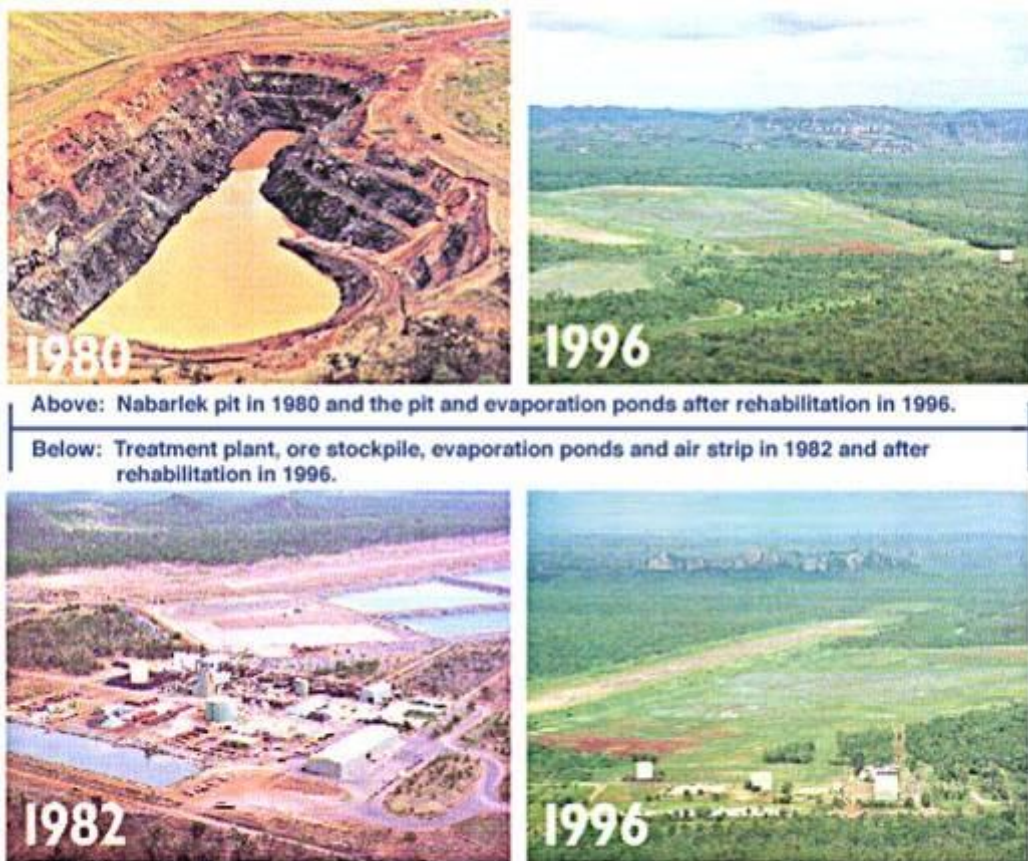
According to the Office of the Supervising Scientist: "The tailings, and the material from the evaporation ponds placed in the pit in October 1992, represent a source of solutes which will affect groundwater quality in this area for the long term. Conductivity, sulphate, and nitrate values are continuing to increase in bores affected by the pit, while pH is decreasing."

The 1985-86 OSS Annual Report stated: "Disposal of uranium mill tailings in surface dams, no matter how well stabilised and protected, almost certainly involves the acceptance of eventual tailings release to the environment. While this risk may be reduced ... it is unlikely that any containment structure could remain totally impregnable to the natural processes of slow erosion over periods comparable to several half-lives of the longest lived isotopes retained in the tailings."

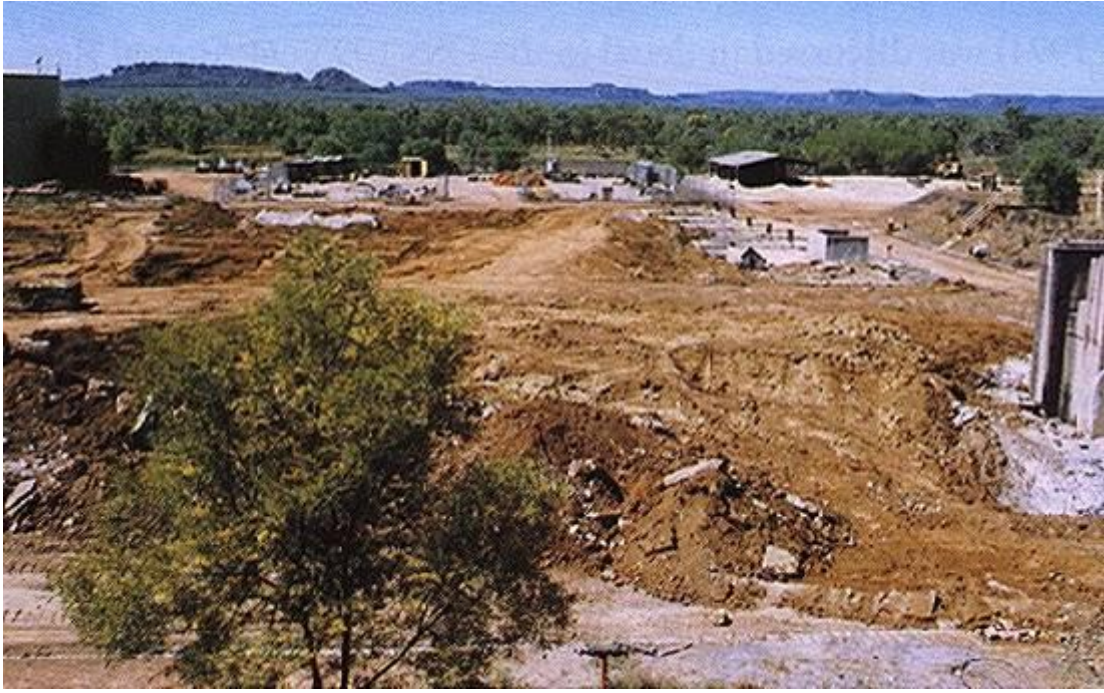
References and more information:

- Mudd, G.M., 2008, 'Radon Releases From Australian Uranium Mining and Milling Projects: Assessing the UNSCEAR Approach'. Journal of Environmental Radioactivity, 99 (2), pp 288-315. Available from Gavin.Mudd@monash.edu
- <http://web.archive.org/web/20060622040726/http://www.sea-us.org.au/oldmines/nabarlek.html>
- Government information on Nabarlek rehabilitation: www.environment.gov.au/ssd/supervision/arr-mines/nabarlek.html
- www.world-nuclear.org/info/Australia_Mines/fmines.html#nabarlek
- 'Nabarlek uranium mine's hidden history', Jon Land, 28 January 1998, www.greenleft.org.au/node/18564
- 'Concern on mine clean-up', Amanda Hodge, *The Australian*, 18 December 2003

- 'The economic impact of mining moneys: the Nabarlek case, Western Arnhem Land', Jon Altman and Diane Smith, Discussion Paper 63 / 1994, <http://caep.r.anu.edu.au/Publications/DP/1994DP63.php>



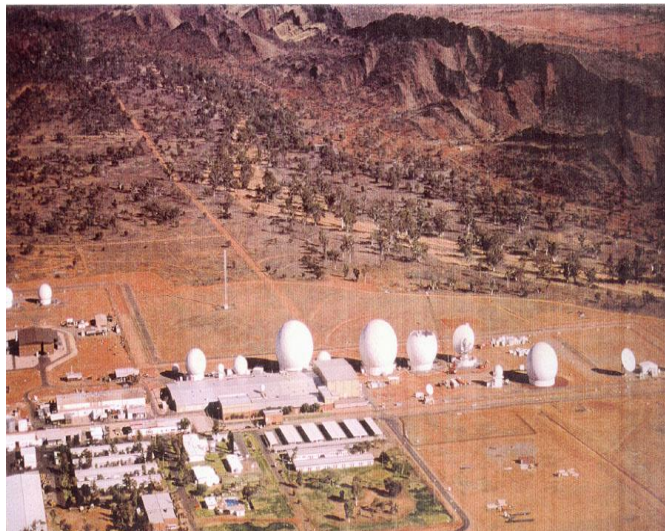
Above and below: Nabarlek, 1995



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PINE GAP US MILITARY COMMUNICATIONS AND SPY BASE

The 'Joint Defence Facility Pine Gap' is a satellite tracking station 18 kms south-west of Alice Springs. It consists of a large computer complex with eight radomes protecting antennas and has over 800 employees. It is believed to be one of the largest ECHELON ground stations.



Pine Gap is controversial because it is an important element of the broader US-Australian military alliance and collaboration during wars such as those on Iraq and

Afghanistan. Pine Gap is also an important element of the US-Australian nuclear weapons alliance (and related programs such as [missile defence](#)) and was a likely [target](#) for nuclear attack during the Cold War.

Academic Richard Tanter [notes](#) that "new operational capacities at the Joint Defence Facility Pine Gap outside Alice Springs, which brought the work of that facility to the front line in the wars in Iraq and Afghanistan and which, together with a new US space surveillance radar planned for North West Cape, have cemented Australia's role in US missile defence and space operations."

Protests over the years [include](#):

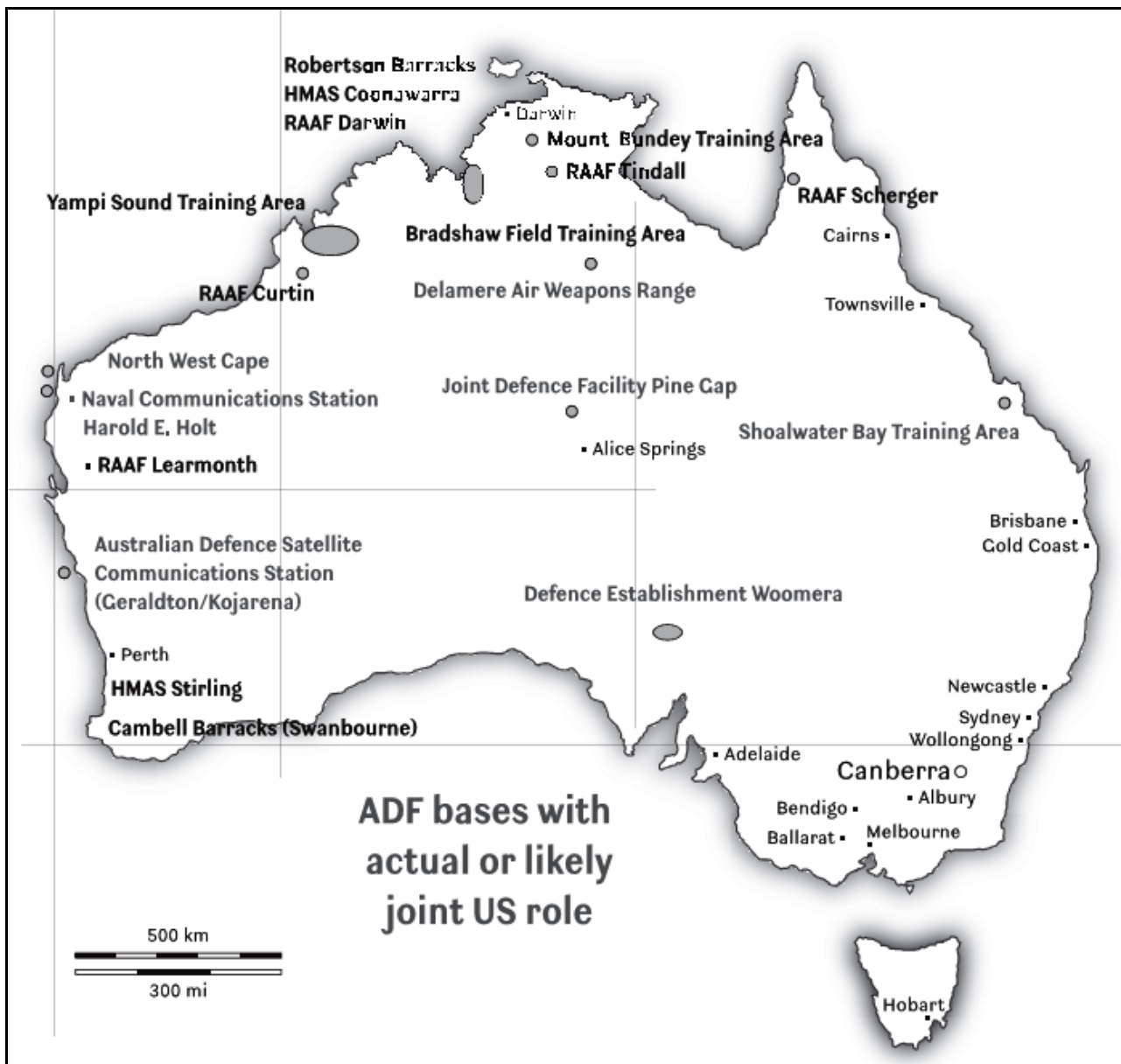
- On 11 November 1983, Aboriginal women led 700 women activists to the Pine Gap gates where they fell silent for 11 minutes to mark Remembrance Day and the arrival of Pershing missiles at Greenham Common in Britain. This was the beginning of a two-week, women-only peace camp, organised under the auspices of Women For Survival. Women trespassed onto the military space and on one day 111 were arrested and gave their names as Karen Silkwood, the American anti-nuclear campaigner. There were allegations of police brutality and a Human Rights Commission Inquiry ensued.
- In 1986 the base was issued with an eviction notice to be "closed by the people" in a Close the Gap campaign; there was a protest by both women and men in which bicycles featured strongly.
- In 2002 about 500 people protested at the gates of Pine Gap, including some politicians. They were objecting to its use in the then impending Iraq war and missile defence, with a massive police presence. A few people were arrested after a scuffle with police.
- In December 2005 six members of the Christians Against All Terrorism group staged a protest outside Pine Gap. Four of them subsequently broke into the facility and were arrested. Their trial began in October 2006 and was the first time that Australia's Defence (Special Undertakings) Act 1952 was used. In June 2007 the four were fined \$3250 in the Northern Territory Supreme Court with the possibility of a seven year jail term. The Commonwealth prosecutor appealed the decision saying that the sentence was "manifestly inadequate". The Pine Gap four cross-appealed to have their convictions quashed. In February 2008 the four members successfully appealed their convictions and were acquitted.



The 'Pine Gap 4' peace activists entering court in June 2007.

Pine Gap is shrouded in secrecy. Federal Parliament's Joint Standing Committee on Treaties noted in a 1999 [report](#) that: "To argue that elected representatives of the Australian community cannot be entrusted with any more information than has been provided to us during this review displays ... profound disregard for the fundamental principles of public accountability that underpin our parliamentary system. The absurdity of this argument is highlighted by the fact that members of a good many US congressional committees are routinely allowed access to such information without apparent jeopardy to US national interests."

The International Campaign to Abolish Nuclear Weapons [argues](#) that Australia is in breach of its obligations under the International Covenant on Civil and Political Rights in respect of Nuclear Weapons in four ways: by supporting preparations for nuclear war carried out at Pine Gap; by allowing US nuclear-armed vessels to enter our waters; by relying on the "protection" of US nuclear deterrence; and by exporting uranium to nuclear-armed countries.



Update:

Richard Tanter, "The "Joint Facilities" revisited – Desmond Ball, democratic debate on security, and the human interest", PDF: <http://nautilus.wpengine.netdna-cdn.com/wp-content/uploads/2012/12/The-Joint-Facilities-revisited-1000-8-December-2012-2.pdf>

More information:

- Nautilus Institute – detailed collection of links to information about Pine Gap: <http://nautilus.org/publications/books/australian-forces-abroad/defence-facilities/pine-gap/>
- Pine Gap protests: <http://nautilus.org/publications/books/australian-forces-abroad/defence-facilities/pine-gap/pine-gap-protests/>
- 'Pine Gap Four': <http://pinegapontrial.blogspot.com.au/>
- Australian Anti-Bases Coalition: www.anti-bases.org

- Back to the Bases, Richard Tanter, Arena magazine, May 2012, www.mapw.org.au/download/back-bases-r-tanter-us-forces-australia-may-2012
- Richard Tanter publications: <http://nautilus.org/network/associates/richard-tanter/publications>
- Richard Tanter, 'Pine Gap and the coalition wars in Afghanistan and Iraq', June 2007, Powerpoint: nautilus.org/wp-content/uploads/2011/12/Alice-meeting.ppt
- Medical Association for Prevention of War, resources on foreign bases in Australia: www.mapw.org.au/australian-issues/foreign-bases
- http://en.wikipedia.org/wiki/Pine_Gap
- Joint Standing Committee on Treaties, October 1999, 'An Agreement to extend the period of operation of the Joint Defence Facility at Pine Gap', www.aph.gov.au/Parliamentary_Business/Committees/House_of_Representatives_Committees?url=jsct/reports/report26/report26.pdf

Videos: <http://australianmap.net/pine-gap>

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ROBERTSON BARRACKS ARMY BASE

Robertson Barracks in Darwin is a major Australian Army base located in the outer Darwin, Northern Territory suburb of Holtze in the Municipality of Litchfield. The barracks was built during the 1990s. The Barracks are home to the 1st Brigade and the 1st Aviation Regiment. Robertson Barracks has a helicopter airfield, similar to Holsworthy Barracks.

Robertson Barracks is to be a future site of a United States Pacific Command Marine deployment, and its current capacity of 4,500 troops will be upgraded in the near future. Currently, the size and the accessibility of key facilities in Darwin follows closely with other US deployment sites around the globe.

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QUEENSLAND

WESTMORELAND URANIUM DEPOSIT

Westmoreland comprises the eastern end of a series of small prospects and deposits spread over about 50 kilometres straddling the Queensland – Northern Territory border, about 400 kilometres north of Mount Isa. Westmoreland is on the Queensland side of the border and its deposits extend over about 10 kilometres.

The deposit is estimated to contain about 22,000 tonnes U₃O₈ (indicated plus inferred).

The Westmoreland deposit was discovered by Mount Isa Mines in 1956 and has had a long history of exploration. Most recently it was held by Rio Tinto Exploration from 1990 until 2000. It is now owned by Canadian company Laramide Resources Ltd, which purchased the lease in 2004 for US\$150,000 plus some Laramide shares.

As of May 2012, the Queensland Liberal National Party government has maintained the previous state Labor government policy of banning uranium mining.

Update:

Laramide's time to shine

Brooke Showers, 1 November 2012, miningnews.net

LARAMIDE Resources has been in high spirits since Queensland's ban on uranium mining was lifted, where it hosts its trophy asset and is now exploring the option of an Australian listing later this year.

Laramide is a uranium focused company, listed on the Toronto Stock Exchange, with projects in the US and exploration tenements across Queensland and the Northern Territory. ...

Westmoreland currently holds an inferred resource of 52 million pounds at 900 parts per million uranium oxide, and contains outcropping and shallow mineralisation, suitable for open pit mining. ...

Although, how ever high the feat of jumping the uranium ban, there is another obstacle on the company's path to production – commodity prices. The current spot price for uranium is sitting at \$US43 per pound, although term prices are higher, at about \$60/lb. ... At current spot prices, the Westmoreland project is not economic. But at \$60/lb the project could advance and at the long-term outlook of \$70/lb, the project was shaping up to be very robust. Laramide's immediate focus is to push the resource up towards the 70Mlb target, which would have then have the potential to produce 4-5Mlb over a 15 year mine life.

The next steps involve moving the inferred resources into to the indicated category and upgrading the scoping study, before applying for permits and advancing towards a production decision.

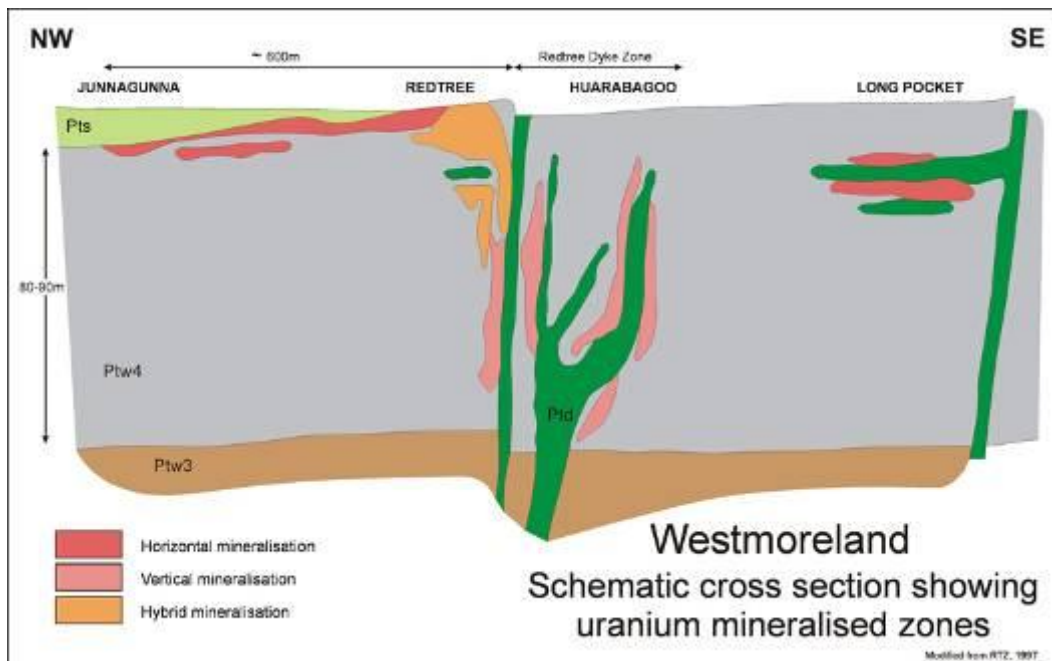
In 2007, MinCorp Consultants completed a scoping study on Westmoreland, which envisaged mining 1.5 million tonnes per annum for about 3Mlb per year.

Jacobs has been appointed to start a follow-up study this year, which is looking to upgrade this to 2-2.5Mt.

More information:

- FoE Brisbane, 2006, 'Uranium Mining in Queensland', <http://foe.org.au/sites/default/files/Qld.pdf>
- <http://web.archive.org/web/20060622155716/http://www.sea-us.org.au/no-way/westmoreland.html>
- www.laramide.com/index.php/projects22/australia10/westmoreland
- http://www.world-nuclear.org/info/Australia_Mines/pmines.html





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[VALHALLA URANIUM DEPOSIT](#)

The Valhalla uranium deposit, 40kms north-west of Mt Isa, is majority owned by [Paladin Resources](#) and Areva has a smaller stake. It is part of a field that also includes the Skal and Anderson's Lode deposits.

Valhalla's total measured plus indicated resources are 28,778 tonnes U₃O₈ and the inferred resource is 5,824 tonnes U₃O₈.

As of May 2012, the Queensland Liberal National Party government has maintained previous state government policy of banning uranium mining.

In May 2012, Mount Isa's mayor-elect Tony McGrady, was [lobbying](#) for a change of state government policy. Mr McGrady, a former mines and energy minister, denied any conflict of interest despite being on the boards of two uranium mining companies – Laramide Resources, which owned the Westmoreland deposit on the Queensland/NT border, and Alligator Energy, with interests in the NT.

More information:

- www.world-nuclear.org/info/Australia_Mines/pmines.html
- www.paladinenergy.com.au/default.aspx?MenuID=35
- www.paladinenergy.com.au/default.aspx?MenuID=78
- www.brisbanetimes.com.au/queensland/mayor-wants-mount-isa-to-be-uranium-hub-20120501-1xwqh.html

13-minute video about uranium mining in Queensland:

www.engagemedia.org/Members/kimk/videos/shutthemdown2008.avi/view

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MARY KATHLEEN – FORMER URANIUM MINE

The Mary Kathleen open-cut uranium mine operated from 1958–63 and again from 1976–82. About 9,200,000 tonnes of ore were processed yielding a total of just under 8,900 tonnes U₃O₈.

The deposit was discovered in July 1954 by prospectors from nearby Mount Isa, soon after the discovery of the nearby Skala deposit sent hundreds of prospectors madly roaming the Mt Isa and Cloncurry countryside.

A sales contract with the United Kingdom Atomic Energy Authority was signed in 1956. Mining commenced at the end of 1956 and the treatment plant was commissioned in June 1958. The project was developed by Mary Kathleen Uranium Ltd (MKU) at a cost of \$24 million.

Over the years various attempts were made to find markets for the rare earths as a co-product, to no avail.

The mine was closed for more than a decade. New contracts with utilities in Japan, Germany and USA for 4,740 tonnes of uranium oxide were negotiated early in the 1970s and recommissioning began in 1974. The Commonwealth Government, through the Australian Atomic Energy Commission, underwrote this, thereby obtaining a 42% holding in the company. Conzinc Riotinto of Australia Limited, a successor of Rio Tinto Mining, held 51%, and the public 7%.

A 2009 [article](#) in the *Courier Mail* states: "Anti-uranium activists from Townsville held up the first, secret rail shipment of 130 tonnes of U₃O₈ from the revived mine for an hour [in 1976], the Australian Council of Trade Unions called for a ban on exports, and the Seamen's Union organised a blockade. Not only that, the mine's owners were forced to pay \$34 million compensation to Westinghouse, which used Australian uranium in its power plants, after the Friends of the Earth green group was handed documents showing evidence of a uranium cartel. But the most extraordinary revelation came in 1980, when two tonnes of yellowcake was stolen and later found in Sydney. The company downplayed the incident, likening it to an employee stealing office stationery!"

In the mid-1970s documents were [leaked](#) to Friends of the Earth revealing:

- shoddy environmental practices at Mary Kathleen;
- close surveillance of environmental organisations;
- the close relationship between the most senior ranking Australian trade union official, ACTU President Bob Hawke, and the chairman of Conzinc Riotinto Australia (CRA), Sir Roderick Carnegie; and
- the complicity of Australian government officials in providing advice to mining companies on how to avoid important nuclear non-proliferation safeguards treaties to sell uranium to places like Taiwan (which was not a signatory to the Nuclear Non-Proliferation Treaty) via "Toll Processing" in the US.

At the end of 1982 the mine was depleted and finally closed down after 4,802 tonnes of uranium oxide concentrate had been produced in its second phase of operation.

One million litres of radioactive liquid were deliberately released in February 1984 from the mines evaporation ponds during an unexpectedly wet wet season.

Mary Kathleen then became the site of Australia's first major rehabilitation project of a uranium mine, which was completed at the end of 1985 at a cost of \$19 million. The mining company covered the tailings with crushed rock instead of clay in order to save millions of dollars. The seepage of radioactive radium and thorium and toxic elements from the tailings has been much greater than if clay had been used as a relatively impermeable barrier. There is ongoing low-level uptake of heavy metals and radionuclides into vegetation.

Update:

Qld Government to probe Mary Kathleen uranium site

Kate Stephens and Virginia Tapp, 6 December 2012,

<http://www.abc.net.au/news/2012-12-06/qld-government-to-probe-mary-kathleen-uranium-site/4412282>

The State Government says it will begin investigating ways to unlock \$4 billion worth of mineral resources at the former Mary Kathleen uranium mine site in north-west Queensland. Queensland Natural Resources and Mines Minister Andrew Cripps says the State Government is particularly interested in the site as a potential hot spot for developing rare earth.

Mr Cripps says there are millions of tonnes of ore tailings at the site, which is in the Selwyn Range between Mount Isa and Cloncurry, making it one of the largest deposits of rare earth in Australia. He says no companies are involved with the process at this stage.

More information:

- Brendan O'Malley, 10 August 2009, 'Mary K reigned in the days before no nukes were good nukes', www.couriermail.com.au/news/features/mary-k-reigned-before-no-nukes-were-good-nukes/story-e6freoro-1225759866462
- B.G. Lottermoser, P.M. Ashley, M.T. Costelloe, 2005, 'Contaminant dispersion at the rehabilitated Mary Kathleen uranium mine, Australia', *Environ. Geol.*, 2005, 48: 748–761, www.springerlink.com/index/k57703154u187353.pdf
- http://en.wikipedia.org/wiki/Mary_Kathleen,_Queensland
- <http://web.archive.org/web/20060516154044/http://www.sea-us.org.au/oldmines/marykathleen.html>
- Collection of photos posted at <http://web.archive.org/web/20060722082707/http://www.sea-us.org.au/oldmines/maryk-hmmm.html>

13-minute video about uranium mining in Queensland:

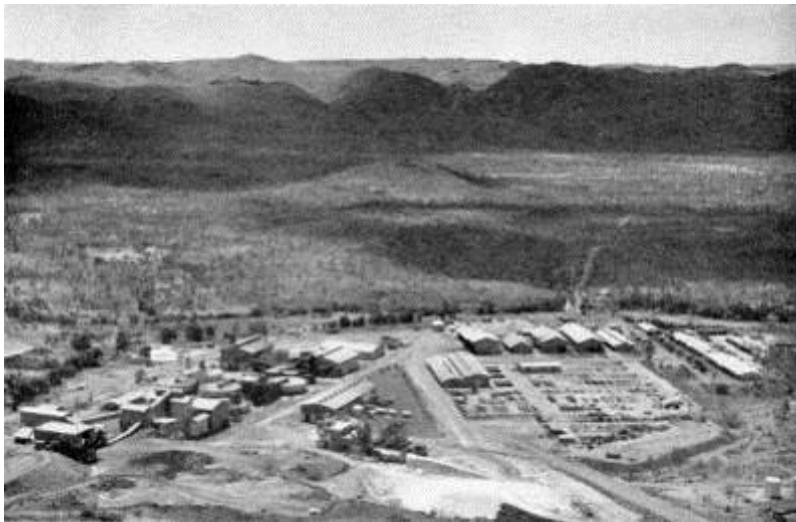
www.engagemedia.org/Members/kimk/videos/shutthemdown2008.avi/view



Crushed ore conveyor, second period of operation, 1976-82.



Aerial view of the tailings dam and evaporation pond, 1976-82.



Process plant in about 1964.



The abandoned open pit at Mary Kathleen, 2009.

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BEN LOMOND URANIUM DEPOSIT

The Ben Lomond uranium (and molybdenum) deposit is located 50 kms west of Townsville. It is owned by Mega Uranium, which purchased it in 2005. The deposit is estimated to contain an estimated 4760–6800 tonnes U₃O₈ (for comparison, BHP Billiton plans to mine three times that amount of uranium annually at Olympic Dam in SA). If the mine proceeds, it will likely be a combination of open-cut and underground mining.

As of May 2012, Mega Uranium was undertaking prefeasibility studies with a view to determining the project economics, the preferred mining and processing options and the key steps in mine development. The recently-elected Liberal National Party

state government has thus far maintained previous government policy of banning uranium mining, but Mega Uranium is betting on a change of policy.

The deposit was discovered in 1975 by the French company Pechiney, then explored and evaluated in detail between 1976 and 1982 by associated companies Total Mining and Minatome. An Environmental Impact Study was accepted by the relevant federal and state authorities in 1984. In addition to problems with the Queensland state government, plans to mine Ben Lomond came unstuck because of federal Labor's 'three uranium mines' policy from 1983 onwards.

Far-right pro-uranium federal MP Bob Katter had [this](#) to say in Parliament on 1 November 2005:

I present a serious note of warning to the House. Of the people in North Queensland that I represent, some 50,000 or 60,000 live on the watershed of the Burdekin River and draw their water from there. The honourable member for Herbert and the honourable member for Dawson are from there. The Burdekin Falls Dam provides water for some 210,000 people. These people are drinking water that comes from the lower reaches of the Burdekin River. The Ben Lomond uranium mine, 40 or 50 kilometres from Townsville, stands right above it. A French company—I think it was Aquitaine—proposed the development of that mine. I was very positive about it. I had been brought up and lived in Cloncurry, my hometown, beside Mary Kathleen. I knew all the people who lived there. I played football there. I went to church there. I did hundreds of things there. We had no evidence that indicated uranium mining was dangerous. Some greenies living up there—not a race of people that I like in any way, shape or form; but in those days there were some sensible people associated with them—started making a noise that there had been a spill of high-level radiation.

Whilst I have waxed lyrical about the dangers of uranium not being great, there is a limit to the dangers we will accept. In the case of Ben Lomond, the company said that there had been no spill. The government agency—the forebears of what we now call the Environmental Protection Agency—also said that there had been no spill. That was for the first three or four weeks. When further evidence was disclosed, they said, firstly, that there had been a spill but the level of radiation was not dangerous and, secondly, that it had not reached the water system from which 210,000 people drank.

For the next two or three weeks they held out with that story. Further evidence was produced in which they admitted that it had been a dangerous level. Yes, it was about 10,000 times higher than what the health agencies in Australia

regarded as an acceptable level. After six weeks, we got rid of lie number 2. I think it was at about week 8 or week 12 when, as a state member of parliament, I insisted upon going up to the site. Just before I went up to the site, the company admitted—remember, it was not just the company but also the agency set up by the government to protect us who were telling lies—that the spill had reached the creek which ran into the Burdekin River, which provided the drinking water for 210,000 people. We had been told three sets of lies over a period of three months.

So I say to the people of the Northern Territory: make sure that ordinary people have some sort of oversighting mechanism. Do not leave it up to the government or its officials. They will dance to the tune played by whatever piper is in charge money-wise or politically. They will not answer to the tune of protecting the people. That has been my experience.

The case of Ben Lomond was notorious, and the very development oriented Bjelke-Petersen government said no to Ben Lomond. The most development oriented government in recent Australian history said no because of the absolutely outrageous performance of their own regulatory body, as well as the mine itself. One other humorous aspect, which was not really humorous at all, was when I asked the regulatory authority chief, 'How do you get your water samples?' He said, 'We have them collected.' I said, 'Who do you have collect them?' He said, without any guile, 'The company.' So we had the company protecting itself, not the people of Queensland or the people who were depending upon this water for their water supply.

Mudd provides a fascinating [history](#) of the attempted development of the mine from the 1970s onwards. A few highlights and lowlights from that history:

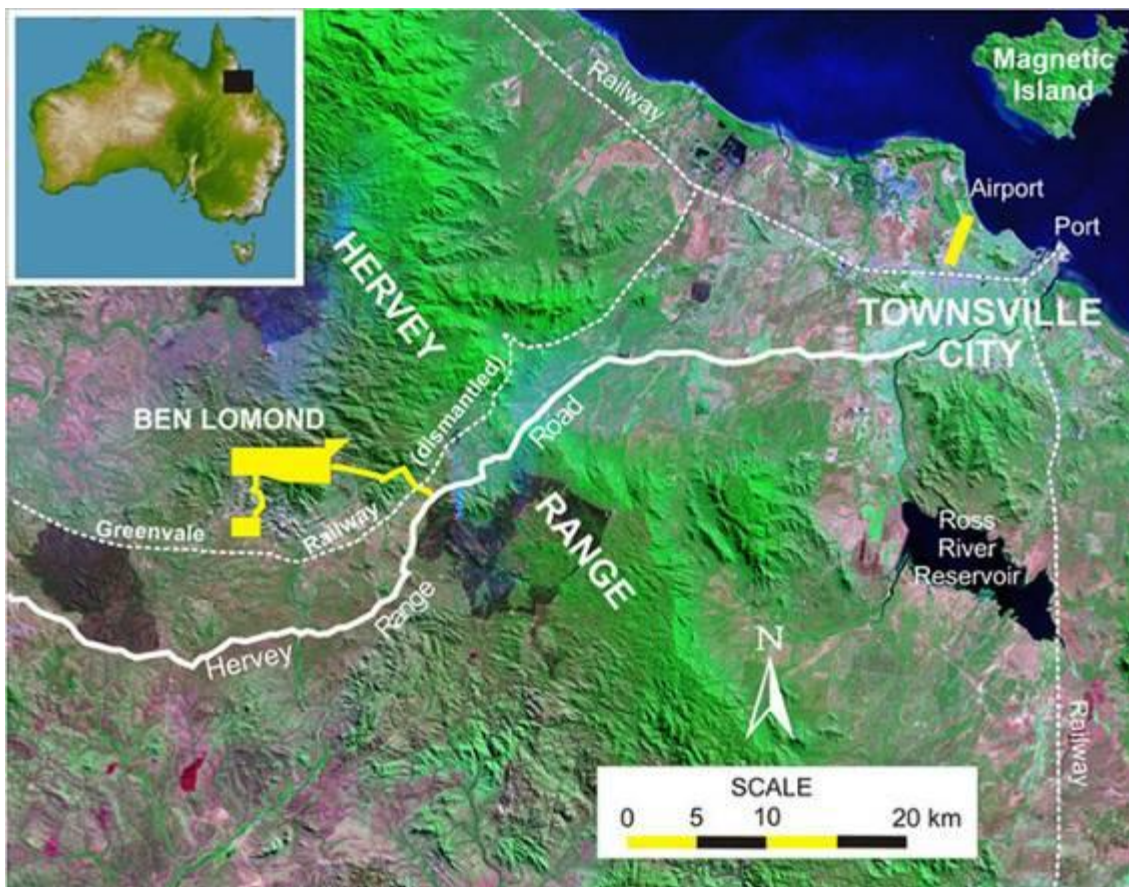
- The Queensland government's eagerness to get the mine underway hinged on plans to site a uranium enrichment plant in Townsville – one proposal for which, at an estimated A\$1000 million, came from Minatome in October 1979.
- Officially the Minatome lease was granted in early 1980 but, a year previously, the state Minister for Mines, Energy and Police, Ron Camm, announced that the mine would be given a quick go-ahead, in a statement made well in advance of completion of an Environmental Impact Study (EIS).
- Not only did the state government refuse to consult with the Townsville City Council and local shires (authorities), it also altered the Mining Act, thus allowing its Mines Department to over-rule local authorities, and it doctored procedures for conducting EIS's – by dropping the term "Environmental" from the rules.
- Local surveys showed a majority of residents opposed to the project; and there had already been an anti-uranium march, in spite of the state's draconian ban on all such demonstrations.

- From this point on, opposition mounted dramatically. The Australian Telecommunications Employees Association in February 1981 imposed communications bans on Minatome. The Movement Against Uranium Mining (MAUM) also announced a "tent village" at Ben Lomond, to be held that summer.
- The opponents' case depended not only on previous experience in the uranium industry, but Minatome's existing practice at the mine site. The Queensland Campaign Against Nuclear Power claimed that: "Already a level of radioactivity two and a half times the legally permitted level has been recorded in a creek which flows into the river. This was from a stockpile of 3500 tonnes. When the mine is in operation, the stockpile will be two and a half million tonnes."
- Neil Heinze, a local civil engineer, claimed that radioactive leakage was "certain" to occur from the site, while all artificial methods of containment were inadequate. Professor Frank Stacey, Professor of Applied Physics at the University of Queensland, predicted that inevitable radioactive leaking would pollute the Burdekin river system, especially as the proposed dam across the river would "ensure that heavy pollutants tend to accumulate in the reservoir and any area in which water from the reservoir is used, instead of being flushed out to sea".
- The Queensland Mining Warden rejected Minatome's application based on environmental considerations. He found that there was no proper long-term arrangement for the containment of tailings. He questioned the appropriateness of clay as a liner for the evaporation ponds and tailings dumps.
- The Queensland Mines Minister, Ivan Gibbs, sought to overturn the Warden's decision. By this time, another scandal was in the news. The national news magazine *National Times* revealed that Minatome had destroyed several vital Aboriginal sites "in the past couple of months" including one possibly some 4,000 years old, "considered to be one of the most significant in North Queensland". This site was bulldozed by the company to make way for an experimental evaporation pond.
- Another Aboriginal quarry site "considered to be unique in Australia" was also under threat by planned high-tension power lines and water pipes, while a sacred pool was threatened by nearby drilling. A confidential document obtained by the *National Times* revealed that Minatome had been aware of these Aboriginal sites since 1978 and was advised in an archaeological impact statement that they should be protected.
- Early the next year, Minatome flew out 36 tonnes of uranium ore from Ben Lomond to Noumea in New Caledonia, then on to France. The flight was organised to evade union bans at Townsville, as well as adverse publicity.
- A few months later, the World Bike Ride – antinuclear activists who had set out from Melbourne in March – set up an "Atom-Free" embassy at the mine site itself.

- Then, in mid-1983, the federal Australian government banned all uranium exports to France, in retaliation for France's continued nuclear testing in the Pacific. In response, the company reportedly filled in the tailings dam and development work came to a halt.
- At the end of the year, the company finally published the environmental impact statement – a few days after the ALP government announced a ban on all new uranium mines, apart from Olympic Dam.
- Early in 1986 it was reported in the Australian Senate that the uranium ore stockpiled at Ben Lomond had been virtually abandoned, with a minimum of security precautions.

More information:

- Mega Uranium: www.megauranium.com/properties/australia/ben_lomond/
- www.world-nuclear.org/info/Australia_Mines/pmines.html
- Dr Gavin Mudd: <http://web.archive.org/web/20060621235454/http://www.sea-us.org.au/no-way/benlomond.html>
- Minatome, March 1983, Ben Lomond Project – Draft Environmental Impact Statement, Brisbane, Qld, Vol 1 and 2.



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[NARANGBA IRRADIATION PLANT](#)

Narangba is home to one of Australia's food irradiation plants. In Australia all irradiation plants use cobalt-60, a nuclear material that emits gamma rays. Herbal teas, spices and some tropical fruits are permitted for irradiation in Australia.

Irradiation changes food in ways that have not been adequately tested for safety. Irradiation depletes food and vitamins and causes the formation of radiolytic products whose effect on human health is not known. In 2009 the irradiation of cat food was banned in Australia after nearly one hundred cats became ill and many died. This has prompted many pet food companies to review their policies regarding irradiation, recognising pet health concerns. The Australian government has yet to recognise that similar risks exist for human health.

Under Australian law, pet food, animal feed, therapeutic goods and complementary medicines are not classified as "food". These products can, therefore be irradiated with no labelling requirements. Many of these products are packaged and sold in a similar manner and on the same retailer shelves as products that are classified as "food". Consumers have no way to discern that the products fall under different regulatory bodies and therefore have differing labelling requirements.

More information:

- <http://foodirradiationwatch.org>
- short [video](#) on the problems with irradiation



Narangba irradiation plant

SHOALWATER BAY – US / AUSTRALIAN WAR GAMES

Shoalwater Bay is used for biennial US-Australian 'joint exercises' (war games) known as Talisman Sabre. Tens of thousands of troops descend on Shoalwater Bay and other sites in Queensland and the Northern Territory.

Talisman Sabre involves US nuclear-powered ships and submarines. The US fleet may also be carrying nuclear weapons as well as depleted uranium munitions. The Australian government states that depleted uranium munitions are not used in Talisman Sabre exercises.

Kim Stewart listed the following ten problems with Talisman Sabre war games in a 2011 [article](#):

- 1. Talisman Sabre takes place on indigenous lands and sovereignty has never been ceded. The Darambal people of Rockhampton region are unlikely to ever get land rights while the military control their land.*
- 2. Talisman Sabre takes place in the Coral Sea and traverses the Great Barrier Reef Marine Park. If ordinary Australians can't fish there, neither should the military be allowed to use sonar (known to effect whales and other sea animals) or leak oil and dispose of their waste there.*
- 3. Talisman Sabre takes place in Shoalwater Bay, one of only three locations where endangered dugong dwell in Australian waters. Injury from ships or shock from undersea explosions pose a threat to their existence.*
- 4. Talisman Sabre, like all war games and war itself, is not environmentally benign. Beside material damage to land and flora by tanks and troop movements, all military activities are polluting, including the use of 'green' practice munitions.*
- 5. Live firing occurs in the water catchment for the town of Yeppoon. Military toxins from munitions have been and continue to be used in this catchment. Given the military's record on sexual assaults recently, they are unlikely to confess to water and land pollution and repeatedly ignore the issue in their documents.*
- 6. Talisman Sabre is not required to submit an Environmental Impact Assessment. They do offer a Public Environment Report each two years, but this is no more than a greenwashing exercise that ignores the social justice issues.*

7. *Talisman Sabre brings many troops to the surrounding towns where drunkenness, street crimes, drug use, prostitution and sexual assaults increase. This is a familiar tale wherever US Troops are based.*

8. *Talisman Sabre further ensconces Australia in a US Alliance where pre-emptive and unjust wars are the norm. The Australian Defence Force admits it is about 'interoperability' with the US military.*

9. *Talisman Sabre is vehemently opposed by people living near the Shoalwater Bay Military Training Area who have been ignored, insulted and buzzed by military helicopters and faced with an ongoing barrage of bomb vibrations all year round from the base.*

10. *Talisman Sabre is part of the training for ongoing wars in Iraq and Afghanistan that have already claimed the lives of 27 Australian troops, more than 3000 US troops and hundreds of thousands of civilians, destroying their homes and livelihoods, contaminating their land with depleted uranium and other toxins and driving many of them to seek refugee status in Australia where they are likely to be further abused.*

More information:

- Australian Anti-Bases Coalition: www.anti-bases.org
- Medical Association for Prevention of War: www.mapw.org.au/search/node/talisman
- MAPW Fact Sheet: www.mapw.org.au/download/mapw-fact-sheet-talisman-sabre-july-2009
- Peace Convergence website <http://www.peaceconvergence.com> (or if it is offline, here is an [archive](#))
- Kim Stewart, Ten reasons to oppose US war games in Australia, Chain Reaction #112, 2011, <http://www2.foe.org.au/resources/chain-reaction/editions/112/ten-reasons-to-oppose-us-war-games-in-australia/>
- Jessica Morrison, Resisting Talisman Sabre military training exercises, Chain Reaction #107, 2009, <http://www2.foe.org.au/resources/chain-reaction/editions/107/resisting-talisman-sabre-military-training-exercises/>
- Kristy Henderson, Talisman Sabre war games: US forces give the nod, Chain Reaction #105, 2008, <http://www2.foe.org.au/resources/chain-reaction/editions/105/talisman-sabre-war-games-us-forces-give-the-nod/>
- Kim Stewart, Defence greenwash on war games a toxic lie, Chain Reaction #100, August 2007, <http://www2.foe.org.au/resources/chain-reaction/editions/100/defence-greenwash-on-war-games-a-toxic-lie/>

- Sue Wareham, Talisman sabre military exercises, war and the environment, 10 July 2009, Online Opinion, www.onlineopinion.com.au/view.asp?article=9148&page=0
- Australian 'Defence Department', Talisman Sabre 2011, www.defence.gov.au/opEx/exercises/ts11/
- Australian 'Defence Department', Talisman Sabre 2009, www.defence.gov.au/opEx/exercises/ts09/



Above and below: Protests at the Talisman Sabre 2009 war games.



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SOUTH AUSTRALIA

WOOMERA – FORMER PROPOSED NATIONAL RADIOACTIVE WASTE DUMP

In February 1998, the federal Coalition government announced its intention to build a national radioactive waste dump in central South Australia. The Kupa Piti Kungka Tjuta – a senior Aboriginal women's council – played a leading role in the campaign against the dump, as did the Kokatha and Barngala Traditional Owners. Many of the Kungkas suffered the effects of the British nuclear testing program in the 1950s.

Aboriginal people were coerced into signing clearances for test drilling of short-listed sites for the proposed dump. The federal government made it clear that if clearances for test drilling were not granted by Aboriginal groups, drilling would take place anyway.

In 2002, the federal government tried to buy off Aboriginal opposition to the dump. Three Native Title claimant groups – the Kokatha, Kuyani and Barngala – were offered \$90,000 to surrender their Native Title rights, but only on the condition that all three groups agreed. The Kokatha and Barngala refused, so the government's ploy failed.



The proposed dump generated such controversy in South Australia that the federal government secured the services of a public relations company. Correspondence between the company and the government was released under Freedom of Information laws. In one exchange, a government official asks the PR company to remove sand-dunes from a photo selected to adorn a brochure. The explanation provided by the government official was that: "Dunes are a sensitive area with

respect to Aboriginal Heritage". The sand-dunes were removed from the photo, only for the government official to ask if the horizon could be straightened up as well.

On July 7, 2003, the federal government used the Lands Acquisition Act 1989 to seize land for the dump. Native Title rights and interests were annulled. This took place with no forewarning and no consultation with Aboriginal people.

In July 2004, the federal government abandoned the plan to build a radioactive dump in SA. The decision reflected the strength and persistence of the campaign against the dump. The victory was also helped by the ruling of the full bench of the Federal Court in June 2004 that the government had illegally used the urgency provision of the Land Acquisition Act.

The Kupa Piti Kungka Tjuta wrote in an open letter: "People said that you can't win against the Government. Just a few women. We just kept talking and telling them to get their ears out of their pockets and listen. We never said we were going to give up. Government has big money to buy their way out but we never gave up."

More information:

- Kupa Piti Kungka Tjuta, Irati Wanti campaign
<http://web.archive.org/web/20080718193150/www.iratiwanti.org/home.php3>
- Jim Green website: <http://pandora.nla.gov.au/pan/30410/20090218-0153/www.geocities.com/jimgreen3/index.html#waste>
- ARPANSA
<http://web.archive.org/web/20040610143043/http://www.arpansa.gov.au/reposit/nrwr.htm>
- Federal Government:
http://web.archive.org/web/20080719051744/http://www.radioactivewaste.gov.au/publications/former_projects.htm
www.ret.gov.au/RESOURCES/RADIOACTIVE_WASTE/WASTE_MGT_IN_AUST/Pages/RadioactiveWasteManagementinAustralia.aspx

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MARALINGA – FORMER NUCLEAR WEAPONS TEST SITE

The British government / military conducted seven nuclear weapons tests at Maralinga in 1956–57 (and two tests at nearby Emu Fields). Maralinga was also the site of a large number of 'minor trials' or 'safety tests' which resulted in extensive local radioactive contamination.

A number of Aboriginal people were moved from Ooldea to Yalata prior to the 1956-57 series of tests at Maralinga, and this included moving people away from their traditional lands. Yet movements by the Aboriginal population still occurred throughout the region at the time of the tests. It was later realised that a traditional Aboriginal route crossed through the Maralinga testing range. There are tragic accounts of Aboriginal families sleeping in atomic bomb craters. Native Patrol Officers had the impossible task of patrolling thousands of square kilometres of land.

Operation Buffalo (Maralinga, South Australia)

One Tree – 27 September 1956 – 12.9 kilotons – plutonium

Marcoo – 4 October 1956 – 1.4 kilotons – plutonium

Kite – 11 October 1956 – 2.9 kilotons – plutonium

Breakaway – 22 October 1956 – 10.8 kilotons – plutonium

Operation Antler (Maralinga, South Australia)

Tadje – 14 September 1957 – 0.9 kilotons – plutonium

Biak – 25 September 1957 – 5.7 kilotons – plutonium

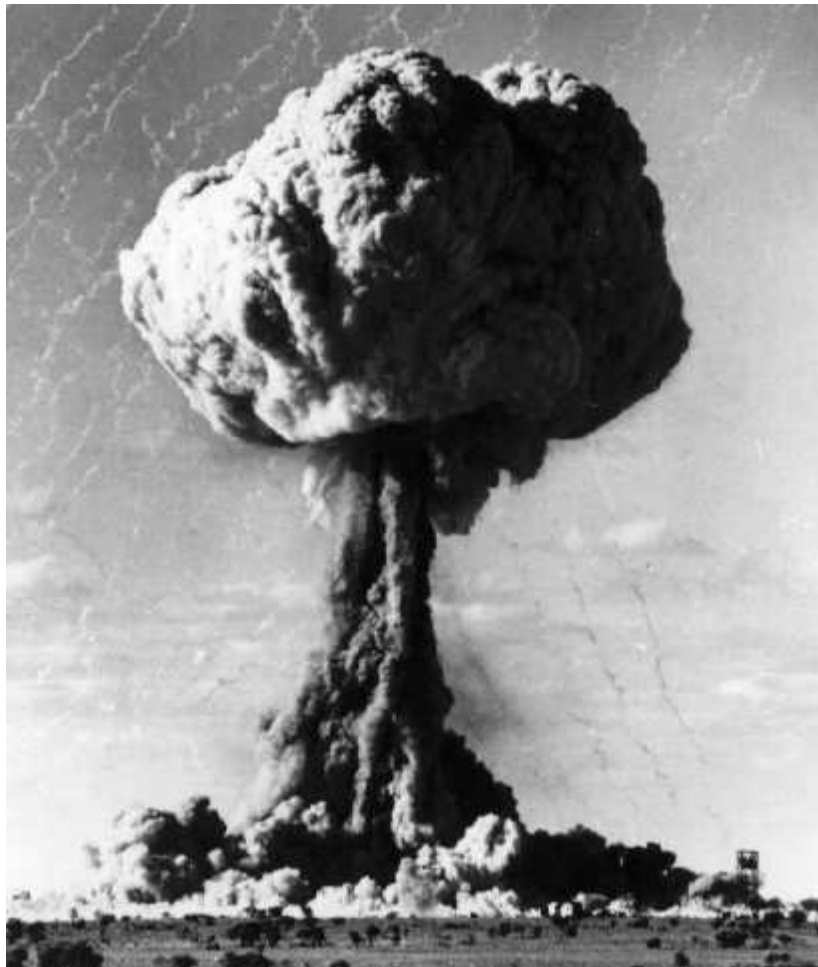
Taranaki – 9 October 1957 – 26.6 kilotons – plutonium



A Valiant bomber used to drop a nuclear bomb at Maralinga.

In relation to the Buffalo series of tests in 1956, the Royal Commission found that regard for Aboriginal safety was characterised by "ignorance, incompetence and cynicism", and that the site was chosen on the false premise that it was no longer

used by the Traditional Owners. Aboriginal people continued to inhabit the Prohibited Zone for six years after the tests. The reporting of sightings of Aborigines was "discouraged and ignored", the Royal Commission found.



'One Tree' nuclear test at Maralinga, 27 September 1956

The British Government paid A\$13.5 million compensation to the Maralinga Tjarutja in 1995. Other Aboriginal victims – including members of the Kupa Piti Kungka Tjuta – have not been compensated and have not received an apology.

In the mid 1990s, another ['clean up'](#) of Maralinga was carried out – the fourth one so far. Before this latest 'clean up', kilograms of plutonium were buried in shallow, unlined pits in totally unsuitable geology ... and after the 'clean up', kilograms of plutonium are *still* buried in shallow, unlined pits in totally unsuitable geology. The plan was to vitrify contaminated material, turning it into a solid glass-like monolith. But the government later realised that there was far more contaminated material than they had originally estimated and budgeted for. So, to cut costs, they curtailed and then abandoned vitrification and simply dumped the plutonium-contaminated material in shallow pits.

Senator Nick Minchin said the Maralinga Tjarutja agreed to deep burial of the contaminated material – but the burial was not deep and the Tjarutja did not agree to it. Nuclear engineer Alan Parkinson, who advised the Maralinga Tjarutja on the clean-up and then became a whistleblower, said on ABC radio in August 2002: "What was done at Maralinga was a cheap and nasty solution that wouldn't be adopted on white-fellas land".



Australian Financial Review cartoon, 20 August 2002 – responding to Science Minister Peter McGauran's [jiggery-pokery](#) regarding the Maralinga 'clean-up'.



Maralinga veteran Avon Hudson, 2011. Photo by Jessie Boylan.



Maralinga village, 2011. Photo by Jessie Boylan.

More information on the British nuclear tests in Australia:

- www.foe.org.au/anti-nuclear/links#6

Videos:

- Maralinga Women tell their story:
www.youtube.com/watch?feature=player_embedded&v=kz9rIW0MTxY
- Australia's Atomic Confessions
www.youtube.com/watch?v=x4ei_pypCF8&feature=related
- Kevin Buzzacott, Lake Eyre, 2011 <http://vimeo.com/24750195>
- Operation Buffalo short documentary <http://vimeo.com/44280839>
- Maralinga Pieces (12 minute video by Jessie Boylan and Anthony Kelly):
<http://vimeo.com/37098264>
- Talk by Maralinga veteran Avon Hudson, 2011, parts [one](#) and [two](#).
- Buffalo round 3 nuclear bomb explosion footage:
www.youtube.com/watch?feature=player_embedded&v=jESsSnrY08k
- A 50-minute documentary focused on scientific whistleblower Hedley Marston who undertook independent radiation measurements during and after nuclear tests at Maralinga:
www.youtube.com/watch?feature=player_embedded&v=vDOUeniCNKM
- Youtube channel www.youtube.com/playlist?list=PLAD64807EBFF590DC
- youtube search for Maralinga – click [here](#).

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EMU FIELD – FORMER NUCLEAR WEAPONS TEST SITE

At the time of the two 'Totem' nuclear tests at Emu Field in South Australia, the area was used, as the 1983-85 Royal Commission reported, for "hunting and gathering, for temporary settlements, for caretakership and spiritual renewal."

Operation Totem (Emu Field, South Australia)

Totem 1 – 15 October 1953 – 9.1 kilotons

Totem 2 – 27 October 1953 – 7.1 kilotons



Totem 1 test, 15 October 1953

A major test named Totem 1 was detonated on 15 October 1953. The blast sent a radioactive cloud – which came to be known as the Black Mist – over 250 kms northwest to Wallatina and down to Coober Pedy. The Totem 1 test is held responsible for a sudden outbreak of sickness and death experienced by Aboriginal communities, including members of the Kupa Piti Kunga Tjuta and their extended families. The Royal Commission found that the Totem 1 test was fired under wind conditions which a study had shown would produce unacceptable levels of fallout, and that the firing criteria did not take into account the existence of people at Wallatina and Melbourne Hill down wind of the test site.



*Yami Lester was blinded by the 15 October 1953 test at Emu Field.
Photo by Jessie Boylan*

In relation to the two Totem tests, the Royal Commission found that there was a failure to consider adequately the distinctive lifestyle of Aborigines and their special vulnerability to radioactive fallout, that inadequate resources were allocated to guaranteeing the safety of Aborigines during the Totem nuclear tests, and that the Native Patrol Officer had an impossible task of locating and warning Aborigines, some of whom lived in traditional lifestyles and were located over more than 100,000 square kilometres.

More information on the British nuclear tests in Australia:

- www.foe.org.au/anti-nuclear/links#6

Videos:

- Maralinga survivors – Yami Lester and Avon Hudson:
www.youtube.com/watch?feature=player_embedded&v=erQRAHmTL9k
- Kevin Buzzacott, Lake Eyre, 2011 <http://vimeo.com/24750195>
- Paul Kelly singing his Maralinga song:
www.youtube.com/watch?feature=player_embedded&v=mvXgspzP0go
- Youtube channel www.youtube.com/playlist?list=PLAD64807EBFF590DC
- Operation Buffalo short documentary <http://vimeo.com/44280839>

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MT PAINTER – FORMER URANIUM MINE

Mt Painter is located 110 kms north-east of Leigh Creek in the Lake Frome area of South Australia. The Mt Painter uranium deposit is sometimes confused with the nearby Mt Gee deposit, and has also been referred to as Armchair and Streitberg. In general it is best to think of the region as a series of small deposits known as Mt Painter. The Mt Gee – Mt Painter mineralisation is also the source of uranium in the palaeochannels around Beverley, a few kilometres east.



Uranium-bearing minerals were discovered in the region by G.A. Greenwood, son of a local pastoralist and prospector, in 1910. This discovery, on what was later named Radium Ridge, was exploited for radium by the Radium Extraction Company of South Australia Ltd (RECSAL). Many prominent locals from the nearby mining town of Leigh Creek bought shares in RECSAL, in the spirit of the mining boom of the time.

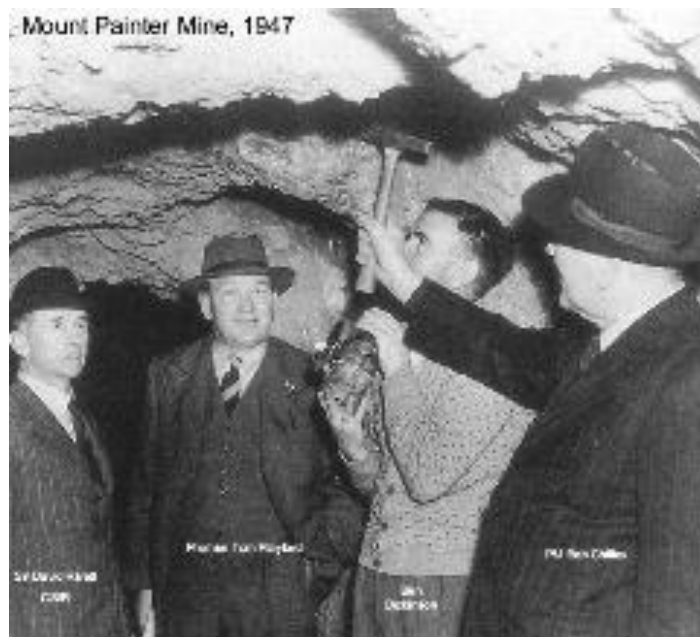
The company opened up several other deposits during the next two years, the largest being the No. 6 workings near Mt Painter. Ore was shipped to Europe until the outbreak of war in 1914 and the company went into liquidation in 1917. (Sir) Douglas Mawson had some uranium from the region shipped to France, where Nobel Prize winner Madam Marie Curie was involved in radioactivity research.

The workings were reopened in 1923 by what was to become the Australian Radium Corporation. Lack of water prevented the erection of a leaching plant on site, and a

small crushing and screening plant gave unsatisfactory results. Camels were used in the rugged terrain to carry crude concentrate and hand-picked ore to less hilly country, where it was transferred to motor lorry and carted to the railway at Copley. From there it was railed to the Dry Creek treatment plant. Both the Mount Painter and Radium Hill deposits were mined intermittently until the early 1930s, when mining ceased. The minerals were processed for their radium content which commanded a high price for the use in medicine. Uranium itself had little use then and interest only increased after 1939 with the discovery of nuclear fission. The Australian Radium Corporation ceased operations in 1932.



Exploration at Mt Painter resumed in 1944 in conjunction with re-examination of Radium Hill and other uranium deposits for potential use in allied nuclear weapons projects.



SA Premier Tom Playford (second from left) and Prime Minister Ben Chifley (right) at Mt Painter, 1947.

Roads were constructed into the workings and camps erected, but the deposits proved to be low grade and uneconomic. Drilling and underground development was continued at East Painter by the South Australian government. The East Painter Camp accommodated up to 60 workers and was equipped with a canteen, bunkhouses, and garages. The project was abandoned in 1950 and the East Painter Camp dismantled.

Between 1968 and 1971, a consortium of mining companies discovered further uranium deposits including the richest and most easily accessible at the Hodgkinson Project. The total uranium resource outlined at Mt Painter by Oilmin was about 3,800 tonnes of U₃O₈ at an average grade of 0.1%. Transoil also prospected with Oilmin at Mt Painter. More than 7,000 tonnes of U₃O₈ in a number of small deposits were located. Like Oilmin and Petromin, Transoil was partly controlled by the interests of Bjelke Petersen, the ex-Premier of Queensland.

The Mt Painter region saw further exploration through a joint venture between Goldstream Mining NL (75%) and Bonanza Gold Pty Ltd (25%), with Goldstream as the operator. The program was of concern to many local Adnyamathanha Traditional Owners. In August 1999 Goldstream announced "significant uranium mineralisation" but follow-up work apparently failed to identify any significant new deposit. Goldstream then abandoned uranium exploration in the Mt Painter region.

More information:

- SEA-US: <http://web.archive.org/web/20060624103751/http://www.sea-us.org.au/oldmines/mtpainter.html>
- old newspaper articles, photos etc: <http://trove.nla.gov.au/result?q=mt+painter+uranium>
- www.southaustralianhistory.com.au/uranium.htm
- <http://austhrutime.com/arkaroola.htm>
- www.history.sa.gov.au/history/conference/R_Keith_Johns.pdf
- Mt Painter photo gallery: <http://web.archive.org/web/20060822050520/http://www.sea-us.org.au/oldmines/mtpaintgall.html>



Above: Camels being loaded with hand selected ore at the No. 6 workings, near Mt Painter, at about 1912. The ore was carried west along the camel pad at the base of Radium Ridge to Blue Mine Creek for motorised transport to the railway at Copley. The dark outcrop at top left is mainly hematite, and contains the uranium minerals.



Above: Transferring supplies from motor lorry to camel near Blue Mine Creek in 1926. The lorry carted ore and concentrates to Copley for railing to the Dry Creek radium extraction plant.



Above: Camels at Mt Painter Camp in 1944. Radium Ridge, site of the original uranium discovery, is in the background.



Above: A 1947 view of East Painter Camp which accommodated up to 60 workers and was equipped with a canteen, bunk-houses, and garages. It was erected in 1944 and dismantled in 1950.



Above: Official visit to the East Painter Camp in 1947. Mark Oliphant, the atomic physicist (later Governor of South Australia), is seated fourth from left next to the South Australian Premier, Thomas Playford.

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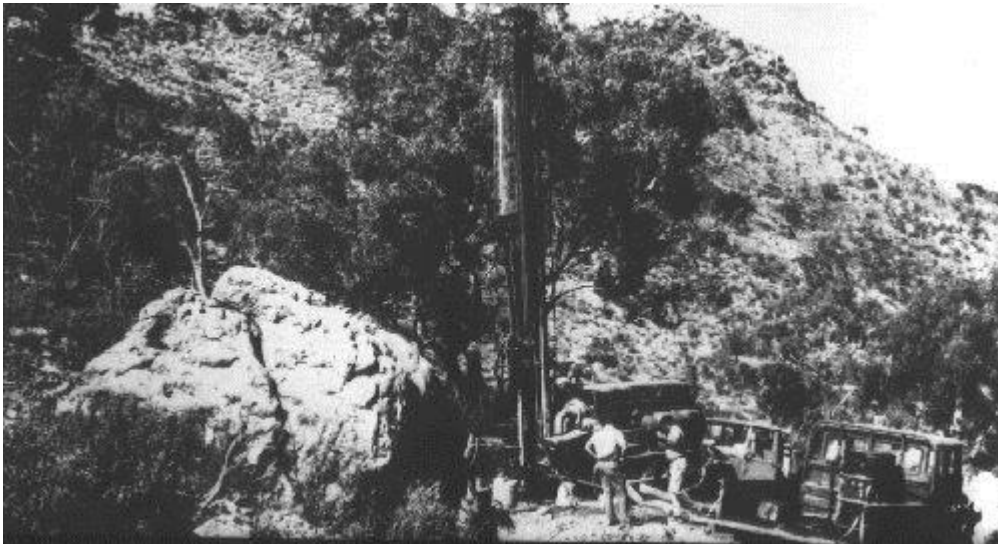
MT GEE – FORMER URANIUM EXPLORATION SITE

Marathon Resources planned to establish a uranium mine at Mt Gee in the Arkaroola Wilderness Sanctuary (AWS). In 2008 the company was found to have illegally disposed of radioactive waste near Mt Gee. Although its exploration licence

was later renewed, the South Australian government announced in 2011 that mining would not be permitted in the AWS.

Approximately 100 exploration holes were drilled at Mt Gee between 1969 and 1971 by the Oilmin Group. (Oilmin also discovered the nearby Beverley deposit to the east around the same time. The Mt Gee – Mt Painter mineralisation is also the source of uranium in the palaeochannels around Beverley.)

A May 1972 'Report of the Committee on Environment in South Australia' by the SA government said that "if the exploration had been conducted under the provisions of the latest legislation, much less despoilation of the landscape might have occurred". History would repeat itself with Marathon's illegal and substandard practices at Mt Gee 40 years later.



A percussion drill rig at the Mt Gee uranium prospect. Mt Gee is in the background.

In 2006, Marathon began uranium [exploration at Yankalilla](#), near Myponga on SA's Fleurieu Peninsula. Marathon chair Peter Williams [said](#) at the company AGM in November 2007: "For Marathon, at Myponga our exploration program met with a powerful community campaign that led to uranium exploration being ruled out in that location by the South Australian Government." Then SA Premier Mike Rann said: "Under Don Dunstan's 1971 Mining Act companies have a legal right to explore, but while I'm premier of the state there will be no uranium mining established anywhere near the Myponga Reservoir."

History would repeat itself with the SA government's 2011 decision to ban mining in the AWS. The Sprigg family, who have owned and run an eco-tourism operation at Arkaroola for many years, spearheaded the campaign against mining at Arkaroola. The AWS is on the Register of the National Estate and it is a Sanctuary under the National Parks and Wildlife Act. It is an Environmental Class A zone under the SA

Development Act which only allows mining when the deposits are of such significance that all other considerations may be overridden. The Sanctuary is home to rare and endangered species including the yellow-footed rock wallaby and the short-tailed grass wren. Sir Douglas Mawson described Arkaroola as "one great open-air museum of geological history".

Marathon has had some colourful shareholder connections, including the [China International Trust and Investment Corporation \(CITIC\)](#) with strong connections to the Chinese military; and Ken Talbot, who was awaiting trial on [charges of bribing a Queensland government minister](#) at the time of his death in 2010. (And to the east of Mt Gee, the equally colourful Neal Blue, CEO of General Atomics / Heathgate, operates the [Beverley uranium mine](#).)



Arkaroola Wilderness Sanctuary and Arkaroola Village.

In 2007 Marathon initiated a pre-feasibility study and an environmental impact study for Mt Gee. Marathon proposed an underground hard rock mine (tunneling into Mt Gee) and a new heavy haulage road across the Sanctuary to transport two million tonnes of ore annually to a processing site to be built somewhere on the plains near Lake Frome.

In September 2008, Marathon [announced](#) a resource estimate at Mt Gee with indicated resources of 2800 tonnes and inferred resources of 28,500 tonnes U3O8, with 0.03% cut-off.

Illegal waste burial

In early 2008, Marathon Resources was caught illegally dumping thousands of drill samples in the Mt Gee region. Illegally dumped material included 22,800 calico bags containing drill cuttings, 16 steel and four plastic drums, 1500 empty plastic bags,

folding seats, tyres, safety suits, aluminium trays, PVC pipes, oil and air filters, bottles and cans and polystyrene foam.

The SA government [said](#) that Marathon had breached its exploration licence conditions through:

- The unauthorised disposal by shallow burial of approximately 22,800 exploration drill cuttings and assay samples contained in plastic and calico bags along with general waste in "The Frypan" area at Mt Gee.
- The unauthorised disposal by shallow burial of general waste including burnt cardboard boxes and plastic bags in the Mt Gee West area in a temporary water sump used during exploration drilling operations.
- The unauthorised disposal by shallow burial of approximately 1700 assay samples contained in plastic and calico bags within 16 plastic and steel drums (approx 200 litres capacity) in the Hodgkinson area by burial in a temporary water containment sump used during exploration drilling operations.

In addition, the AWS managers noted other problems with Marathon's activities at Mt Gee:

- numerous hydrocarbon spills;
- Marathon's contractors stole 90,000 litres of rainwater;
- Marathon employee/s [stole fluoride](#) from the Mt Gee Geological Monument; and
- failure to follow safety procedures resulting in loss of wildlife.

In January 2008 the SA government indefinitely suspended Marathon's exploration licence.

It is important to note that Marathon's illegal activities were uncovered by detective work by the managers of the AWS; most likely governmental 'oversight' and 'regulation' would not have uncovered the illegal activities.



Before, during and after its illegal environmental activities at Mt Gee, the company promulgated familiar rhetoric. Marathon chair Peter Williams [said](#) at the company's 2007 Annual General Meeting: "Building a world-class project with world-class environmental and safety standards is a challenging task, but we believe we have the right systems in place to achieve our goals"

Marathon became embroiled in a [legal dispute](#) with former Marathon CEO Stuart Hall, partly in relation to the company's illegal activities.

In August 2008, the SA Department of Primary Industries and Resources approved a clean-up plan by Marathon. All mineral samples, including those containing naturally occurring radioactive minerals, were removed from bags and drums and re-buried under two metres of clean and compacted soil. The clean-up was approved by the SA government in April 2009.

Marathon chair Peter Williams [said](#): "Throughout the review process, I came to the difficult realisation that this incident may in fact have been symptomatic of our culture and Marathon's overall approach."

Protection for Arkaroola

In October 2009, the SA government announced it would allow Marathon to resume exploration at Mt Gee. However in July 2011, the SA government [announced](#) that exploration and mining would be banned in the AWS. Then SA Premier Mike Rann said the government would pursue a three-step process:

- preserving the area from operation under the Mining Act by proclamation, thus preventing future exploration and mining titles being granted in the area;
- enacting special purpose legislation to protect the natural, cultural and landscape values of the area in perpetuity and to prohibit mining, mineral exploration and grazing in the ranges; and
- nominating the area for listing on the National Heritage List, and seeking to have it nominated for World Heritage listing.

The SA government made a \$5 million ex gratia [payment](#) to Marathon Resources in early 2012, acknowledging the costs incurred by the company during exploration.



The payment was made despite the SA government's stated view that it was under "absolutely no legal obligation to make a payment to Marathon Resources or its subsidiaries as a result of the decision to protect the Arkaroola region." The government stressed that its granting of an exploration licence in no way committed it to permit mining. As a consequence of the agreement, Marathon ceased Supreme Court litigation against the government and the matter has been settled.

Marathon spent \$20 million on Mt Gee in capitalised costs and \$10m in written-off direct costs according to a [report](#) in *The Australian*. Marathon chair Peter Williams [said](#) the company had spent \$15.8 million in exploration work at Mt Gee.

[Seventy-two percent of South Australians](#) wanted mining banned in the Arkaroola Wilderness Sanctuary (82% according to [another poll](#)), and supporters of the ban included former Liberal Senator Nick Minchin and SA Liberal MP Iain Evans.

Supporters of uranium mining in the Sanctuary included AWU dunnard [Paul Howes](#). The decision to protect Arkaroola from mining was also opposed by the Australian Uranium Association and the SA Chamber of Mines and Energy. The Chamber's CEO Jason Kuchel said: "the mining industry in this state has exhibited an exhaustive yet highly successful co-operative approach to environmental protection, cultural sustainability, workplace safety and site rehabilitation".

Adnyamathanha Traditional Owners are [divided](#) on mining at Mt Gee. Vince Coulthard, Adnyamathanha Traditional Lands Association (ATLA) chairperson and a supporter of mining at Mt Gee, said he felt sad for the "old people" in the area who had been "totally overlooked" by the Premier with his decision to ban mining. However under Mr Coulthard's leadership, a [breakaway group of Adnyamathanha Elders](#) has formed in opposition to ATLA.

Adnyamathanha woman Dr Jillian Marsh said: "Mt Gee is a very significant area to the Adnyamathanha people. It is in the path of Akurra the great spiritual serpent that drank Manda (Lake Frome) dry and travelled back to Yakki water hole where he now rests. Some Adnyamathanha today may not readily acknowledge the importance of our cultural knowledge about the Mount Gee area, but many of us know: 'If the Akurra's Back is Broken our Heritage will be destroyed forever'."

After the government decision to protect Arkaroola, Adnyamathanha Elder Enice Marsh said it was a dream come true for Indigenous people to know the area would be protected. "I just want to thank the people that persevered with this and kept coming to our meetings so that we could document all this," she [said](#).

In November 2010, SA mining laws were [revised](#) to toughen penalties for companies guilty of breaches such as Marathon's illegal waste dumping.

A bill to ban mining in the AWS [passed](#) the SA Parliament in February 2012. The Greens succeeded in making changes in the Upper House, including a requirement for traditional owners to be consulted over management.

In addition to its impact on Mt Gee, the protection of Arkaroola effectively reduced by 38% the size of [exploration licence 3666](#) in which Alliance Resources holds a quarter interest.

Update:

Radioactive waste being stored in shed in Arkaroola

Bryan Littlely, December 25, 2012

<http://www.adelaidenow.com.au/news/south-australia/radioactive-waste-being-stored-in-shed-in-arkaroola/story-e6frea83-1226543320645>

IT'S the nuclear-waste facility that few people know about - 21 barrels of medium- to high-level radioactive material stored in a tin shed in South Australia's Outback paradise.

The waste is in the heart of Arkaroola, the Outback wilderness sanctuary the State Government hopes will one day be included on the World Heritage list.

The facility, known as Painter Camp, is not registered under the Radiation Protection Act and a management plan for its safe and secure operation is still being developed. ...

The Department of Manufacturing, Innovation, Trade, Resources and Energy inherited the radioactive materials and Painter Camp in October after it advised Marathon Resources on how to upgrade the facility.

The EPA and Arkaroola Wilderness Sanctuary also were consulted in the upgrade, which added a series of secure above-ground vaults for storing trays of drilling core samples, and the storage shed. ...

An EPA spokesperson said DMITRE has applied to have the facility, which sits in a gully in the shadows of uranium-rich Mt Gee and Arkaroola's famed Ridge Top Track, registered under the Radiation Protection Act.

The EPA did not elaborate on the radiation levels of the materials, however, it is known radiation levels of the materials stored inside the barrels were too high for it to be returned to the ground during a rectification clean-up Marathon was ordered to take by the EPA in 2009.

Most of the barrels now in the shed had been buried by Marathon as a way of disposing of them.

More information

Arkaroola Wilderness Sanctuary including the Sprigg's campaign against mining at Mt Gee:

www.savearkaroola.com.au

www.arkaroola.com.au/mt_gee.php

www.arkaroola.com.au/breakingnews.php

www.arkaroola.com.au/mining.php

Lots of information and photos by Bill Doyle: <http://unknownsa.blogspot.com.au>

Information on mining at Mt Painter and photo galleries of Mt Painter and Mt Gee:

<http://web.archive.org/web/20060624103751/http://www.sea-us.org.au/oldmines/mtpainter.html>

Marathon Resources: www.marathonresources.com.au

Documents on the Mt Gee mining application: www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=referral_detail&proposal_id=3716

SA Greens MLC Mark Parnell:

www.markparnell.org.au/campaign.php?campaignn=19.

If and when that website disappears, here is an archive:

<http://web.archive.org/web/20110706125226/http://www.markparnell.org.au/campaign.php?campaignn=19>

Photos of Arkaroola Wilderness Sanctuary

www.flickr.com/photos/liamjon-d/sets/72157627428327947/with/5731838041/

www.flickr.com/photos/liamjon-d/sets/72157626746395156/with/5731838041/

www.flickr.com/photos/liamjon-d/sets/72157602426525519

30-second TV advert to protect Arkaroola from mining: vimeo.com/14730140

Reports on Marathon's illegal activities:

- SA government (PIRSA) May 2008 report: www.markparnell.org.au/uploads/Arkaroola_PIRSA%20Final%20Report_8May08.pdf
- an earlier (January 2008) report by PIRSA: www.markparnell.org.au/uploads/Marathon_PIRSA%20investigation_16Jan08.pdf
- the clean-up (rectification) plan: www.pir.sa.gov.au/_data/assets/pdf_file/0011/78194/EL3258_Rectification_Plan_11Aug08.pdf
- background statement to the clean-up (rectification) plan: www.pir.sa.gov.au/_data/assets/word_doc/0007/78505/Background_Statement_to_PIRSA_release_of_Rectification_Plan_140808.doc
- www.abc.net.au/news/stories/2008/08/18/2338793.htm

- www.abc.net.au/news/stories/2009/04/29/2555433.htm
- www.abc.net.au/news/stories/2009/10/13/2712821.htm
- www.theaustralian.news.com.au/story/0,25197,26036377-2702,00.html

Some news reports on the decision to ban mining in the AWS:

- [Ladies and gentlemen – we won!](#)
- [Arkaroola wilderness mining ban welcomed](#)
- (Then) Premier Mike Rann's statement to Parliament:
http://hansard.parliament.sa.gov.au/pages/loaddoc.aspx?e=1&eD=2011_07_26&c=16
- [Premier Mike Rann announces permanent protection for Arkaroola](#)
- [Mike Rann: The man who 'saved' Arkaroola](#)
- [Historic day as Arkaroola finally gets permanent protection](#)
- [Wilderness mining ban passes both SA houses](#)
- [Tougher mining breach penalties passed in SA](#)
- [Editorial: Rann decision on Arkaroola must be hailed](#)
- [Smithson: Arkaroola move a win for all](#)
- [Angry miners feel shafted on Arkaroola](#)
- [Business: 'Pro-mining' image takes a hit](#)
- [Opponents condemn \\$5m wilderness mining compensation](#)
- [Marathon starts legal fight over Arkaroola mining ban](#)

Videos:

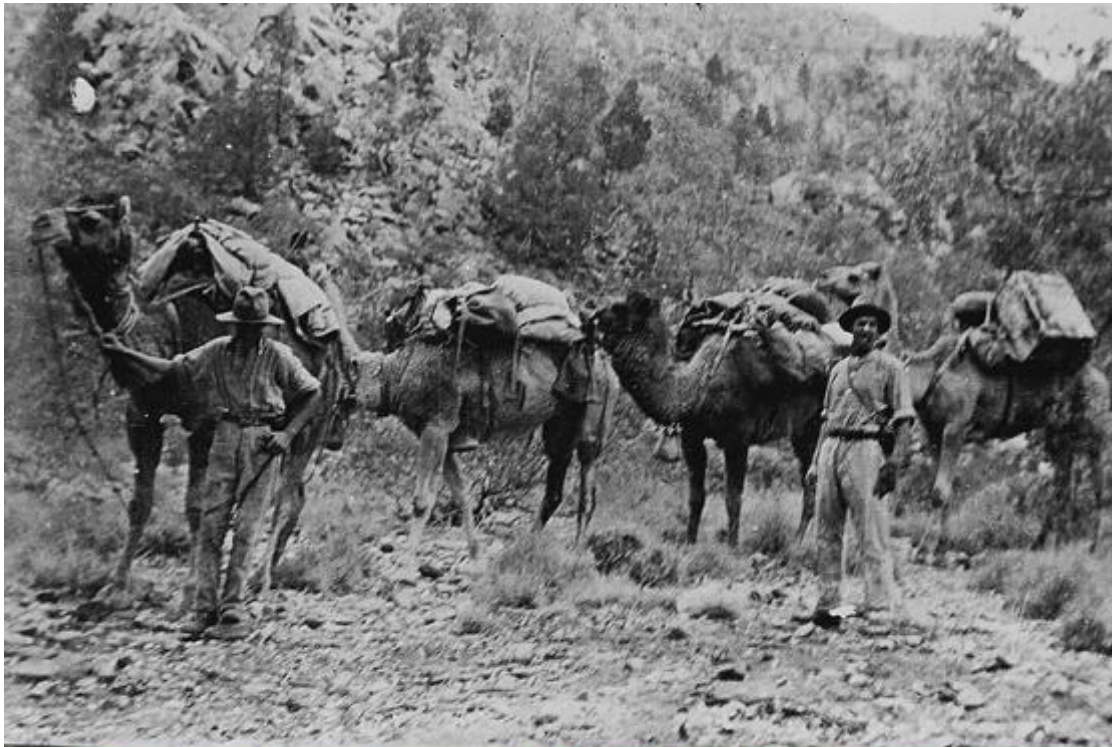
- TV news report:
www.youtube.com/watch?feature=player_embedded&v=GRspD_Aw2as#!
- Short video on the case for protecting Arkaroola Wilderness Sanctuary:
www.youtube.com/watch?feature=player_embedded&v=nCMEeG9gLa0

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RADIUM HILL – FORMER URANIUM MINE

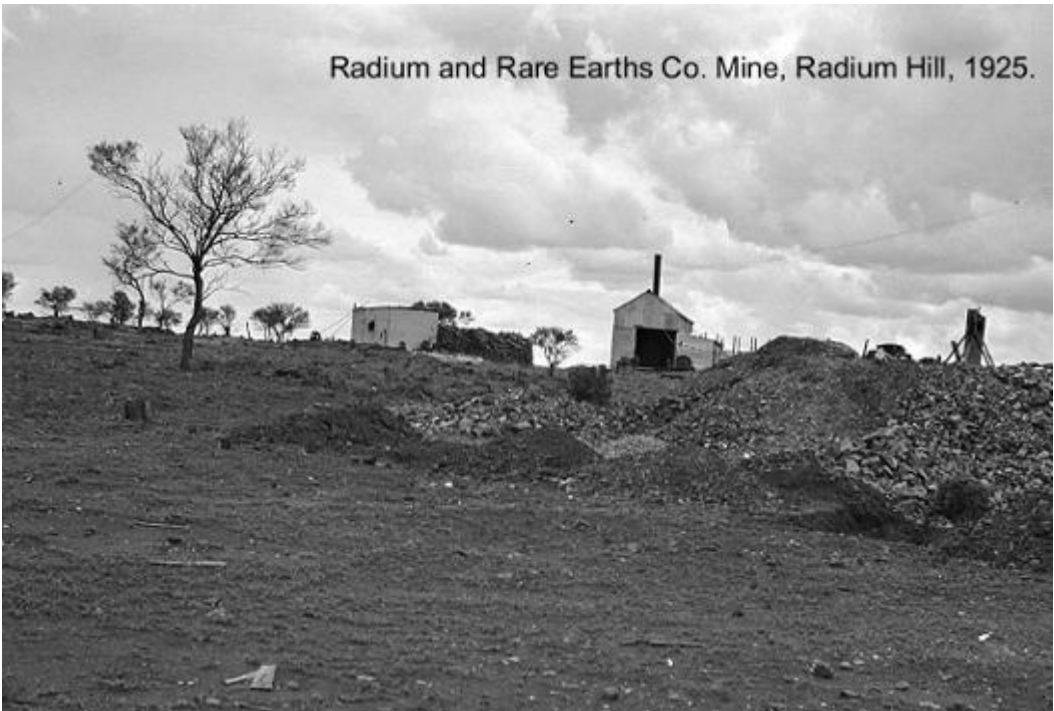
The Radium Hill deposit was discovered in 1906 and mined for radium between 1906 and 1931 and for uranium between 1954 and 1961. In the early days it produced radium for the Curies in France. The ore concentrate was treated in New South Wales and Victoria to yield a few hundred milligrams of radium and several hundred tonnes of uranium by-product. Later, a plant at Dry Creek, near Adelaide, processed Radium Hill ore to extract radium. The radium produced was used for medical purposes and the uranium by-product was used as a bright yellow pigment in glass and ceramics.

By 1952, Radium Hill had been proved large enough to mine uranium. The underground mine was recommissioned in 1954 and operated by the South Australian Government to satisfy a cost-plus contract signed by the Commonwealth and SA Governments with the UK-USA Combined Development Agency for delivery of uranium oxide over seven years. The CDA was the agency responsible for obtaining uranium for the British and US nuclear weapons programs. Radium Hill was operated on land previously occupied by Aboriginal people, and its yellowcake was incorporated (along with Australia's other source material) into nuclear weapons later tested on Aboriginal land and people.



Bentley and Smiler Greenwood at Radium Creek, 1919

Radium and Rare Earths Co. Mine, Radium Hill, 1925.



A township to support 1100 people was built at Radium Hill, with water being piped from NSW, a railway spur constructed to connect Radium Hill with the Broken Hill–Port Pirie line, and a power transmission line constructed from Morgan.

Concentrate was railed 300 kilometres to a treatment plant at [Port Pirie](#) designed to produce 160 tonnes of uranium oxide per year and operated by the SA Department of Mines. The uranium mine operated from September 1954 to December 1961. The Port Pirie uranium treatment plant operated from 1956 to February 1962, producing 852 tonnes of U₃O₈.

Although the uranium grades at Radium Hill were moderate to low, the rare earths grade was exceptional, with values up to 7% rare earth oxides. A proposal was made public in the late 1980s to mine and extract the rare earths from the remnant tailings at Port Pirie, although the project was abandoned due to intense public opposition and known community health problems from the uranium tailings and lead-zinc smelting.

In 1982 the South Australian Health Commission and Adelaide University commenced a study of ex-miners at the Radium Hill mine (see Woodward, 1991; Woodward et al., 1991; Mudd, 2008a). In July 1986, the Commission issued a progress report. More lung cancers were attributable to the workforce than in the community at large, but the Commission could not decide whether these were due to radon exposure in the underground workings, or the heavy rate of smoking. Moreover "significant numbers of Radium Hill miners were immigrants, some of whom may have had uranium mining experience in high-exposure mines in other countries".

The Radium Hill health study was finally published in 1991, nine years after its inception. It dismissed some of the complacent interim conclusions of 1986, and concluded that radiation may have contributed to premature deaths among the workforce. The Federal Industrial Relations Minister, Peter Cook, held out the possibility of compensation to 56 families of victims of Radium Hill.

Little remains today of the 1954-61 uranium-mining period or earlier radium extraction operations other than a number of foundations, infrastructure remnants, tailings impoundment and some waste rock and heavy media reject piles.

In late 1997, it was discovered that radioactive solid wastes from a Field Leaching Trial conducted at Beverley by Heathgate Resources were to be disposed of at the "Radium Hill Shallow-Ground Radioactive Waste Disposal Site", operated by the SA Dept. of Mines and Energy. This was the first time it has become public knowledge

that the old underground workings from the Radium Hill mine were a licensed repository for such wastes.

The SA government [states](#) that in 1981: "the site was also established as a repository for low-level radioactive waste materials, primarily to facilitate the clean-up of contaminated soil held in Thebarton in the Adelaide metropolitan area."

A 2003 SA government audit of radioactive waste states:

"There are approximately 400,000 tonnes of tailings that remain at Radium Hill, held in a rectangular pile consisting of two sections, each approximately 125 m square and 8 m high. The northern end of the tailings dam has been used intermittently as a repository for low level radioactive waste since April 1981, when the site was gazetted under the Crown Lands Act 1929 and placed under the care, control and management of the (then) Minister of Mines and Energy. The material placed in the repository between 1981 and 1998 includes contaminated soil and ore residues from the Australian Mineral Development Laboratories (AMDEL) (Thebarton), ore residues from AMDEL (Frewville), contaminated soils from a former radium plant at Dry Creek, and some contaminated equipment from test work conducted at the Honeymoon site in the early 1980s. The repository now contains approximately 200 m³ of material in 200 L and 50 L drums buried in the dam. ... The repository has not been used since 1998. It is regularly inspected by officers of PIRSA for any damage to the clay cover, and remedial action is taken as appropriate. ... The future intermittent disposal of radioactive waste at the Radium Hill repository is not recommended as the site is not engineered to a standard consistent with current internationally accepted practice."

The 2003 SA government audit also states: "Several piles of material, possibly crushed waste rock or rejects from the former heavy media separation plant, also remain on site."

As of May 2012, it appears that a [risk assessment process](#) conducted by the SA government is ongoing.

Lottermoser and Ashley (2006) [write](#):

"Rehabilitation was limited to removal of mine facilities, sealing of underground workings and capping of selected waste repositories. In 2002, gamma-ray data and samples of tailings, uncrushed and crushed waste rock, stream sediment, topsoil and vegetation were collected to assist in examining the current environmental status of the mine site. The data indicate that

capping of tailings storage facilities did not ensure the long-term containment of the low-level radioactive wastes due to the erosion of sides of the impoundments. Moreover, wind erosion of waste fines (phyllosilicates, ore minerals) from various, physically unstable waste repositories has caused increasing radiochemical (from a background dose of 35 – 70 nSv/h to max. 0.94 mSv/h) and geochemical (Ce, Cr, La, Lu, Rb, Sc, Th, U, V, Y, Yb) impacts on local soils. Plants (saltbush, pepper tree) growing on waste dumps display evidence of biological uptake of lithophile elements, with values being up to 1 – 2 orders of magnitude above values for plants of the same species at background sites."

Lottermoser and Ashley [conclude](#):

"The Radium Hill uranium mine in South Australia ceased operations in 1961 and underwent rehabilitation in the 1980s. The mine area now consists of numerous waste rock dumps, several tailings storage facilities and numerous relicts and foundations of buildings and other structures. The waste dumps are prone to physical erosion involving wind and seasonal rain. Physical dispersion of mineralised particles from waste rock dumps and tailings repositories, has led to local enrichment of lithophile elements (Ce, Cr, La, Lu, Rb, Sc, Th, U, V, Y, Yb) in adjacent soils. Plants (pepper tree, saltbush), growing on contaminated soil, display enhanced uptake of lithophile elements. The enrichment in common species implies that there is potential for transfer of U into grazing animals and their bioaccumulation. Additional capping and landform design of the crushed waste and tailings repositories are required in order to minimise erosion and impacts on surrounding soils and sediments."



Ore truck, c.1955



Treatment building and headframe c.1955



Tailings Dam c.1957

References and more information:

- Radium Hill Historical Association (information and photos): www.radiumhill.org
- <http://web.archive.org/web/20060624103929/http://www.sea-us.org.au/oldmines/radiumhill.html>
- http://en.wikipedia.org/wiki/Radium_Hill
- SA government: www.pir.sa.gov.au/minerals/mines_and_developing_projects/former_mines/radium_hill_mine
- McLeary, M., 2004. [Radium Hill Uranium Mine & Low-Level Radioactive Waste Repository: Management Plan Phase 1 – Preliminary Investigation](#). PIRSA Report Book 2004/09
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Australian Science, 16 (2), pp 169-198, www.publish.csiro.au/nid/108.htm, available from Gavin.Mudd@monash.edu

- Mudd, G.M., 2008, Comment on "Radium Hill : Bindi to Boom Town", by Kevin R. Kakoschke. [Journal of Australasian Mining History](#), vol. 5, September 2007, pp. 135-149. [Journal of Australasian Mining History](#), 6, pp 176-181. Available from Gavin.Mudd@monash.edu
- Mudd, G.M., 2008, 'Radon Releases From Australian Uranium Mining and Milling Projects: Assessing the UNSCEAR Approach'. [Journal of Environmental Radioactivity](#), 99 (2), pp 288-315. Available from Gavin.Mudd@monash.edu
- Mudd, G.M., 2008a, Radon Sources & Impacts: A Review of Mining and Non-Mining Issues. [Reviews in Environmental Science and Biotechnology](#), 7 (4), pp 325-353. Available from Gavin.Mudd@monash.edu
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- Woodward, A., Roder, D., McMichael, A.J., Crouch, P. & Mylvaganam, A., 1991, 'Radon Daughter Exposures at the Radium Hill Uranium Mine and Lung Cancer Rates Among Former Workers, 1952-87'. [Cancer Causes & Control](#), 2, pp 213-220.

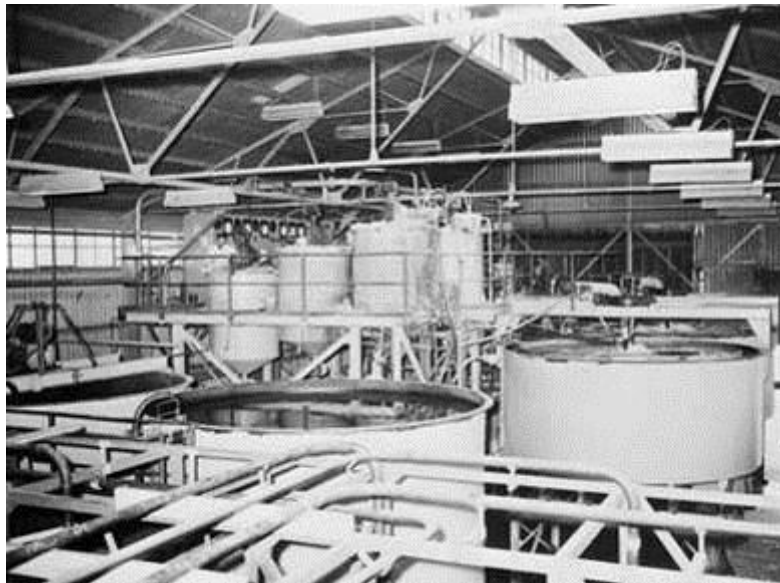
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PORT PIRIE – FORMER URANIUM PROCESSING PLANT

The Combined Development Agency (CDA) was established in 1948 by the governments of the United States and the United Kingdom to ensure adequate supplies of uranium for nuclear weapons development programs. In Australia, uranium ore was processed at the Port Pirie Uranium Treatment Complex (PPUTC), which was operated by the South Australian government's mines department under contract to the CDA.

The PPUTC was situated north of the township of Port Pirie, approximately one kilometre west of the Port Pirie River. The £1.8 million complex commenced operations in August 1955 and closed in February 1962. It processed ore from [Radium Hill](#) and Wild Dog Hill (Myponga), 64 kms south of Adelaide.

The PPUTC was designed to produce 160 tonnes of uranium oxide per year. It produced 852 tonnes of U₃O₈ from 1956 to 1962, valued at A\$36 million or £15 million. The Myponga mine contributed just over one tonne of U₃O₈ in 1954–55, from 340 tonnes of ore; thus Radium Hill was by far the main source of uranium ore.



Above and below: Port Pirie Uranium Treatment Complex



The PPUTC consisted of three parts:

- Leaching of uranium concentrate to dissolve the uranium-bearing mineral using 98% sulphuric acid.
- Separation of the liquid carrying the uranium from spent ore after leaching (counter current decantation plant). In this process, the uranium-rich liquid was separated from the solids by passing through thickeners. The washed, spent ore was mixed with waste liquid from the plant and pumped to the tailings dams.
- Recovery of the uranium by precipitation of the uranium salt. This material was dried using a hot blast type unit. The outgoing air passed through an electrostatic precipitation unit to remove uranium dust before discharging to the atmosphere.

Tailings

Six clay-lined dams were constructed for the storage of tailings and waste water generated in the uranium extraction process. Additional tailings material was produced from the processing of rare earths (e.g. scandium and yttrium). During the early 1960s, the Rare Earth Corporation (REC) operated on the site, extracting scandium, yttrium oxide and other rare earths from the uranium tailings and some imported material. As part of the operations, four smaller dams were built immediately to the east of the uranium tailings dams. A monazite cracking plant was later set up on the site and operated from 1969 to 1972. The by-products from this industry, which include monazite residues containing elevated levels of radionuclides (mainly thorium), were deposited in the REC dams.

Thus the site has the six original uranium tailings dams and four smaller rare earth tailings dams – in total these cover approximately 26 hectares and contain about 200,000 tonnes of tailings.



A number of significant management issues have arisen from the storage of tailings at the PPUTC:

- first, from the close proximity of homes to the dams (within 300 metres);
- second, due to the lack of fencing, the site was used as a playground for children over a number of years; and
- third, from the insufficient height of the tailings walls which failed during the high tides of 1981.

After six years of community pressure and after high tides breached the walls of the tailings dam in 1981, the dam wall was increased in height; the tailings were covered under a metre of slag, clay and topsoil; the area was re-fenced; and a trench was constructed to drain run-off water into an evaporation pond. It took 30 years to take

these stop-gap remedial measures. The financial cost to the South Australian public was about \$1 million.



Jenny Lewis was a prominent member of the local campaign group that succeeded in getting the Port Pirie tailings fenced off and partially remediated. To hear Jenny talk about her experiences click [here](#).

According to the 1997 Senate Select Committee on Uranium Mining and Milling [report](#): "The Committee is not convinced, on the evidence before it, that rehabilitation and remedial work has been satisfactorily completed. It recommends a full public evaluation of the work as soon as possible and that the sites be reappraised at intervals of not more than two years."

The SA government's 2003 '[Audit of Radioactive Waste](#)' recommended that long-term management plans be developed as required by conditions of registration of the Port Pirie site under the SA Radiation Protection and Control Act 1982. The report states: "In the mid 1980s, slag from the adjacent Pasminco smelter was used to cover dams 2, 3 and 4 and parts of dams 1 and 5 to minimise radon emissions and any potential for dust emission. From 1989 to 1990 the plant area was surveyed and partially decontaminated, and contaminated soil and other material was deposited in the eastern end of dams 5 and 6. The slag coverage was recently extended to cover the northern end of the former processing plant area following the demolition of the original processing tanks."

The SA government established a Community Focus Group in 2005 in collaboration with the Port Pirie Regional Development Board. The purpose was to establish an effective forum to provide a review process and communication link between the project management team and the community of Port Pirie relating to the management and potential remediation of the PPUTC.

Further work was carried out in 2005–2006 including

- assessment of the structural integrity of the tailings impoundments;
- identification and sampling of radiometric and other contaminant anomalies;
- radiological testing of buildings prior to demolition, then demolition and dismantling of all buildings and infrastructure, and removal of the majority of the original foundations;
- quantification of all existing wastes, covers etc.;
- work to determine what economic value and potential remain (if any) in the residue products on-site, namely the tailings resulting from the original extraction of uranium; and
- hydrogeological investigation.

As of June 2012 the SA government's [website](#) indicates that the following work is in progress:

- groundwater sampling and monitoring to determine what mechanisms and processes are occurring with respect to hydrogeological conditions at the site;
- plant site cleanup – disposal of remaining plant and equipment; and
- risk assessment and control scoping study to quantify and assess the level of risk associated with the site with respect to both radiological and non-radiological impacts.

June 2012 correspondence from the SA Department of Manufacturing, Innovation, Trade, Resources and Energy states: "The site assessment works were undertaken to inform the department in developing the long term planning and management of the sites. As a follow on from these works, the sites are actively monitored to provide additional information to assist with the ongoing development of management plans and potential remediation."

Thus there are outstanding environmental and public health issues 50 years after the closure of the PPUTC, and Port Pirie can be added to the list of uranium mines and plants with ongoing problems and concerns decades after their closure.

Although the uranium grades at Radium Hill were moderate to low, the rare earths grade was exceptional, with values up to 7% rare earth oxides. A proposal was made public in the late 1980s to mine and extract the rare earths from the remnant tailings at Port Pirie. However the project was abandoned due to public opposition.

More information:

- SEA-US: <http://web.archive.org/web/20060624103944/http://www.sea-us.org.au/oldmines/portpirie.html>
- historical information and photos: trove.nla.gov.au/result?q=port+pirie+uranium

- SA government: www.pir.sa.gov.au/minerals/mines_and_developing_projects/former_mines/port_pirie_treatment_plant
- McLeary, M., 2004, 'Port Pirie Uranium Treatment Plant Site: Management Plan Phase 1, Preliminary Investigation', PIRSA Report Book 2004/10, www.pir.sa.gov.au/data/assets/pdf_file/0016/32533/rb2004_010_ptpirie_u.pdf



Above: A 1958 photograph. Ore concentrates were leached in boiling sulphuric acid to dissolve the uranium, which was precipitated, after further processing, as yellowcake. Leaching vats were housed in the tall building to the right of the four thickening tanks. The tanks were used to settle out solids from the waste material, and water was returned to the plant for re-use; the thickened solids were pumped into the tailings dams at left.

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OLYMPIC DAM URANIUM MINE

BHP Billiton planned to supplement underground uranium mining at Olympic Dam with a massive open-cut mine. Export of uranium was expected to increase from an average of 4,000 tonnes per year to 19,000 tonnes per year and the production of copper, gold and silver was also expected to increase.

However in August 2012 the company shelved plans for an open-cut mine, saying that a smaller version of the project will be considered in coming years. The existing underground mine will continue operating.



Olympic Dam mine, South Australia

The company has not been required to study the viability of mining copper, gold and silver without also extracting and selling uranium – an [option](#) (PDF) which would allow for ongoing, profitable mining while addressing at least some of the major problems.

The mine operates under the Roxby Downs Indenture Act, which provides overrides and exemptions from the SA Aboriginal Heritage Act. BHP Billiton is in a legal position to determine what consultation occurs with Traditional Owners, who is consulted, and nature of any consultation. The company decides the level of protection that Aboriginal heritage sites receive and which sites are recognised. It is ironic and hypocritical that BHP Billiton supports Reconciliation Australia's 'good governance' program and has provided over \$2 million to Reconciliation Australia, yet will not relinquish its exemptions from the Aboriginal Heritage Act.

The Indenture Act also allows wide-ranging and indefensible exemptions from key environmental laws such as the SA Environmental Protection Act 1993, Freedom of Information Act 1991, and Natural Resources Act 2004. Those exemptions were retained when the Indenture Act was amended in 2011 in preparation for the planned expansion. The amended Indenture Act lapses in December 2012 and will need to be renegotiated if BHP Billiton revives its plan for an open-cut mine in some form or other.

In 2011, SA Liberal Party industry spokesperson Martin Hamilton-Smith [said](#) "every word of the [amended Indenture] agreement favours BHP, not South Australians." It beggars belief that the SA Labor government would agree to such one-sided terms; and it beggars belief that Mr Hamilton-Smith and his Liberal colleagues waved it through Parliament with no amendments.

The only politician to insist on some scrutiny of the amended Indenture Act was SA Greens MLC [Mark Parnell](#). He was accused of holding the state's economy to

ransom. The transcripts of his late-night Parliamentary questioning of the Labor government are posted [here](#) and [here](#). Time and time again the government spokesperson said that BHP wanted such-and-such a provision in the Indenture Act, and the government simply agreed without further consideration or consultation.



Kokatha Traditional Owners c.2004

Olympic Dam is a state within a state – and it has shades of a Stalinist state. When a mine worker provided the [media](#) with photos of multiple leaks in the tailings dams in 2009, BHP's response was to [threaten](#) "disciplinary action" against any workers caught taking photos.

Mining consultants Advanced Geomechanics noted in a 2004 [report](#) that radioactive slurry was deposited "partially off" a lined area of a storage pond at Olympic Dam, contributing to greater seepage and rising ground water levels; that there is no agreed, accurate formula to determine the rate of evaporation of tailings and how much leaks into the ground; and that cells within a tailings pond covered an area more than three times greater than recommended, requiring "urgent remedial measures".

Under the open-cut mine expansion plan, the production of radioactive tailings, stored above ground, would increase seven-fold to 68 million tonnes annually. The tailings contain a toxic, acidic soup of radionuclides and heavy metals. There have been numerous spills and leaks – e.g. in the mid-1990s it was revealed that about three billion litres had seeped from the tailings dams over two years.



Radioactive tailings, Olympic Dam. *Photo by Jessie Boylan*

In 2010, a mine worker was sufficiently concerned about occupational health issues at Olympic Dam that he [leaked](#) information to the media. The leaked documents show that BHP uses manipulated averages and distorted sampling to ensure its official figures of worker radiation exposure slip under the maximum exposure levels set by government. The risks will escalate with plans for a massive expansion of the mine. The BHP whistleblower said, "Assertions of safety of workers made by BHP are not credible because they rely on assumptions rather than, for example, blood sampling and, crucially, an assumption that all workers wear a respirator when exposed to highly radioactive polonium dust in the smelter."

Uranium production at Olympic Dam was expected to increase to 19,000 tonnes per year under the open-cut expansion plan, sufficient to fuel 95 power reactors which would produce 2,850 tonnes of high-level nuclear waste per year (in the form of spent nuclear fuel). That amount of spent fuel contains 28.5 tonnes of plutonium – enough for 2,850 nuclear weapons each year.

BHP Billiton sells uranium to nuclear weapons states in breach of their NPT disarmament commitments, dictatorships, states refusing to ratify the Comprehensive Test Ban Treaty, states blocking progress on a Fissile Material Cut-Off Treaty, states with a history of secret nuclear weapons research, and states stockpiling 'civil' plutonium. A new low was set in 2006 when the federal government, with BHP Billiton's support, negotiated a uranium export agreement with the secretive, repressive, militaristic, undemocratic regime in China. The

expansion of the Olympic Dam mine is heavily predicated on the export of copper-uranium concentrate to China.

For the open-cut expansion plan, BHP Billiton proposed an increase in water consumption from 35 million litres daily (from the Great Artesian Basin) to over 250 million litres daily (up to 50 million litres daily from local groundwater, up to 42 million litres daily from the Great Artesian Basin, and the remainder from a proposed desalination plant at Point Lowly, near Whyalla). That's over 100,000 litres every minute – in the driest state in the driest continent. The water take from the Great Artesian Basin has had adverse impacts on the precious Mound Springs and the desalination plant is also controversial.

More information:

- Friends of the Earth www.foe.org.au/anti-nuclear/issues/oz/u/roxby
- Monash Uni environmental engineering lecturer Dr Gavin Mudd's website: <http://users.monash.edu.au/~gmudd/publications.html>
- List of spills and accidents at SA uranium mines: www.pir.sa.gov.au/minerals/sa_mines/approved_mines
- [SA Greens MLC Mark Parnell's detailed Q&A with the SA government re 2011 Roxby Downs Indenture Act](#)
- [Cuttlefish Country](#) (impacts on the Spencer Gulf and the Giant Cuttlefish)
- [Save the Basin](#) (impacts on the Great Artesian Basin)

Videos about Olympic Dam mine:

- [Talk by Dr Gavin Mudd from Monash University](#) (and see parts [two](#) and [three](#)).
- [David Noonan talk about Olympic Dam](#) (and see parts [two](#) and [three](#))
- ['Olympic Dam Mega-Expansion Without Uranium' Report Launch](#) (and click [here](#) to download the PDF report).
- [Interview with FoE's Jim Green](#)
- [All That Glitters is Not Gold](#)
- [Risks of BHP's proposed desalination plant on the Giant Cuttlefish](#)
- [Impacts of the water take from the Great Artesian Basin on the precious Mound Springs](#)
- [Uranium – Is it a country?](#)
- [BHP Peep Show](#)
- [BHP Billiton AGM – protests 27 November 2008](#)
- [Greens Senator Scott Ludlam + government propaganda](#)
- [Interview with SA Greens MLC Mark Parnell](#)
- [Independent Daily statement](#)



Above and below: Over 500 people attended the Lizard's Revenge protest at Olympic Dam, July 2012, despite the risk of the sort of police brutality faced by protesters at Beverley a decade earlier. www.lizardsrevenge.net



Videos about Lizard's Revenge:

- <http://lizardsrevenge.net/video>
- youtube.com search for Lizard's Revenge: click [here](#).
- [Uncle Kevin Buzzacott Interviewed prior to Lizard's Revenge](#)
- [Anti-uranium protesters arrested](#)

- [Protesters blockade BHP mine site](#)
- [Activists break through gate at uranium mine \(TV news\)](#)
- [Police shutting down the Lizards Revenge cricket game](#)
- [Frocks On The Frontline](#)

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[BEVERLEY URANIUM MINE](#)

Since 2001 a fast-tracked in-situ leach (ISL) mine, the Beverley uranium mine, has been operating in the northern Flinders Ranges in South Australia. The mine is owned by General Atomics, a US-based company, and managed by its subsidiary, Heathgate Resources.

Heathgate sells uranium to nuclear weapons states which are in breach of their disarmament obligations under the Nuclear Non-Proliferation Treaty, to at least one country with a recent history of secret nuclear weapons research (South Korea), and to countries which refuse to ratify the Comprehensive Test Ban Treaty.



ISL mining

ISL involves pumping acid into an aquifer. This dissolves the uranium ore and other heavy metals and the solution is then pumped back to the surface. The small amount of uranium is separated at the surface. The liquid radioactive waste – containing radioactive particles, heavy metals and acid – is simply dumped in groundwater. From being inert and immobile in the ore body, the radionuclides and heavy metals are now bioavailable and mobile in the aquifer.

Heathgate has no plans to clean up the aquifer as it says the pollution will 'attenuate' – that the aquifer will return to its pre-mining state over time. This claim

has been queried by the scientific community as being highly speculative with little or no firm science behind it.

Adnyamathanha Traditional Owner Jillian Marsh noted in her submission to 2002-03 Senate References and Legislation Committee that: "The government chose not to demand that the groundwater be rehabilitated, an unacceptable situation for the Australian public at large given our increasing reliance on groundwater and the increasing salinity of land surfaces and water systems."

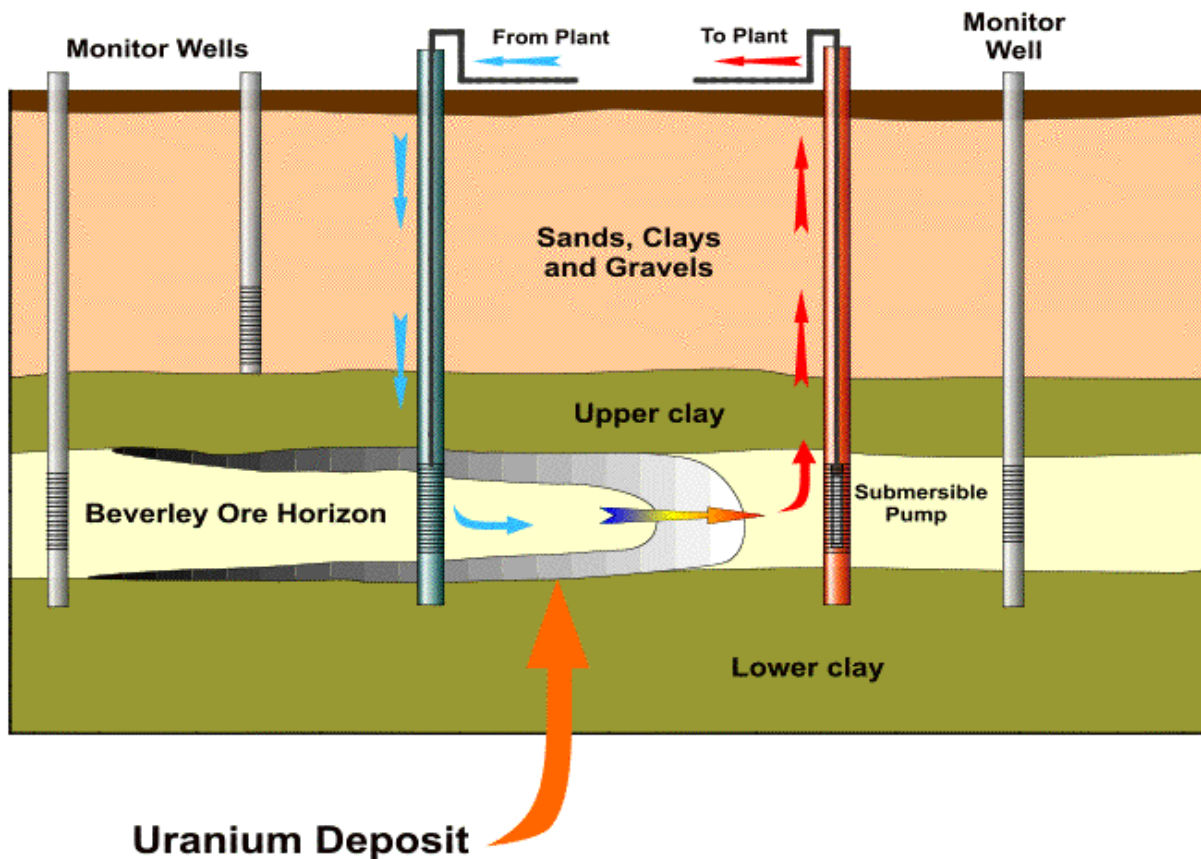
The 2003 report of the Senate Committee said:

The Committee is concerned that the ISL process, which is still in its experimental state and introduced in the face of considerable public opposition, was permitted prior to conclusive evidence being available on its safety and environmental impacts.

The Committee recommends that, owing to the experimental nature and the level of public opposition, the ISL mining technique should not be permitted until more conclusive evidence can be presented on its safety and environmental impacts.

Failing that, the Committee recommends that at the very least, mines utilising the ISL technique should be subject to strict regulation, including prohibition of discharge of radioactive liquid mine waste to groundwater, and ongoing, regular independent monitoring to ensure environmental impacts are minimised.

Another feature of ISL mining is surface contamination from spills and leaks of radioactive solutions. The SA Department of Primary Industry and Resources lists 59 spills at Beverley from 1998–2007. Examples include the spill of 62,000 litres of contaminated water in January 2002 after a pipe burst, and the spill of 15,000 litres of contaminated water in May 2002.



Heathgate's record in Australia

Heathgate's activities at Beverley (and Beverley Four Mile) have been extremely divisive among Adnyamathanha Traditional Owners. Some Adnyamathanha Elders have formed an Elders Group as a separate forum from the Adnyamathanha Traditional Lands Association. Enice Marsh [said](#): "There have been many attempts over the past 10 years to try and bring greater accountability to what's happening in Native Title, and to stop the ongoing assault on our Yarta (country). Many of us have tried with very little resources, limited understanding of the legal system and environmental laws, and despite a mountain of bullying, lies and deceit from mining companies, lawyers, and self-inflated thugs in our own community who dare to call themselves 'leaders'."

Heathgate has a track record of secrecy, such as its failure to publicly acknowledge a series of leaks before the 2002 SA state election and its refusal to release key environmental reports until the South Australian Ombudsman found that its commercial-in-confidence claims were spurious.

Heathgate also has a disgraceful track record of spying on environment groups. GA / Heathgate has employed at least one private investigator to [infiltrate environment groups](#) in Australia. The infiltrator, known as Mehmet, had previously infiltrated

green groups as part of an undercover police operation before he moved into the private sector to set up his own security company, Universal Axiom. He also provided personal protection to visiting GA executives. When asked about the company's tactics, a Heathgate spokesperson said the company was privately owned and had a policy of not responding to media questions.

People who worked at Friends of the Earth at the time – around the turn of the century – say they were highly suspicious about Mehmet from the get-go. His activities might have been laughable and pathetic except that he provided exaggerated information about the likely attendance at a protest at the Beverley uranium mine in May 2000. That led to an excessive police presence at the protest and police brutality against environmentalists and local Aboriginal people including the capsicum spraying of an 11-year old Adnyamathanha girl. An [online video clip](#) details this brutality. Heathgate applauded the police action (in a 2000 media release which is no longer available online).

After a 10-year legal case, 10 people were awarded a total of [\\$700,000 damages](#). Supreme Court Judge Timothy Anderson described the imprisonment of protesters in shipping crates as "degrading, humiliating and frightening" and noted that the action constituted an "affront to the civil liberties of the protestors". He added: "The conditions were oppressive, degrading and dirty, there was a lack of air, there was the smell from capsicum spray and up to 30 persons were crammed into a very small space."

Some more General Atomics / Heathgate lowlights

This clip – http://youtu.be/tKeTXXL7Y_0 – from ABC TV's 'Hungry Beast' program explains some of the colourful connections of Neal Blue, head of General Atomics (which owns Heathgate Resources, which owns and operates the Beverley uranium mine in South Australia.) Over the years Blue has had commercial interests in oil, Predator drones, uranium mining and nuclear reactors, cocoa, bananas and real estate.

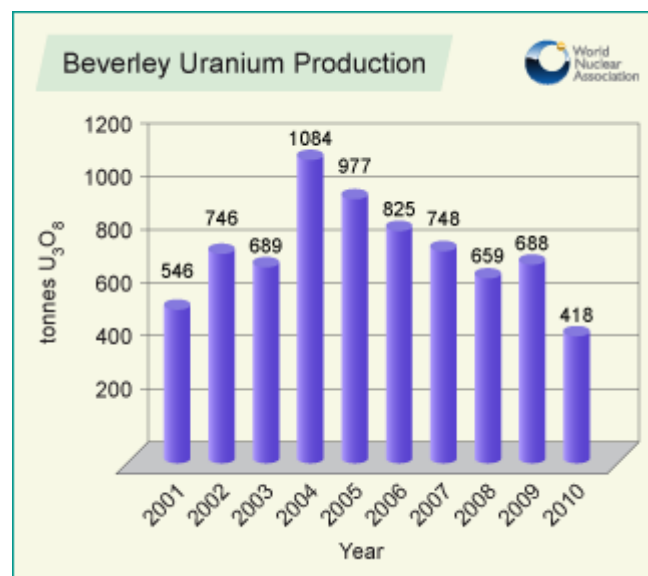
Radioactive spills and gas leaks at a uranium processing plant in Oklahoma led to the plant's [closure](#) in 1993. The plant was owned by a GA subsidiary, Sequoyah Fuels Corporation, and processed uranium for use in reactors and for use in depleted uranium munitions. A nine-legged frog may have GA to thank for its dexterity. A government inquiry found that GA had known for years that radioactive material was leaking and that the radioactivity of water around the plant was 35,000 times higher than US laws permitted.

In 1992, a leak at the Oklahoma plant forced the [evacuation](#) of a building only two weeks after federal inspectors allowed it to resume operating. Later that year, the company [announced](#) that the plant would be closed after it had been ordered to temporarily shut down three times in the previous six years. Sequoyah Fuels Corporation President Joe Sheppard said the company could no longer afford rising costs related to regulatory demands.

The shenanigans and jiggery-pokery at the Oklahoma plant – documented by the [World Information Service on Energy](#) – include the disposal of low-level radioactive waste by spraying it on company-owned grazing land, and the company's attempt to reduce the amount of property tax it paid on the grounds that radioactive contamination reduced the value of the land!

Fortune Magazine [recounts](#) one of the controversies surrounding GA / Heathgate's uranium ventures in Australia. When uranium prices increased in the mid-noughties, the company was locked into long-term contracts to sell yellowcake from Beverley at earlier, lower prices. Heathgate devised plans to renegotiate its legally-binding contracts. Customers were told that production costs at Beverley were higher than expected, that production was lower than expected, and that a failure to renegotiate contracts would force Heathgate to file for bankruptcy.

However former employees said that Blue had allegedly directed Heathgate to increase its production costs. Customers were not told that bankruptcy was unlikely since GA had agreed to continue providing Heathgate with financial assistance.



Two of Heathgate's Australian directors, Mark Chalmers and David Brunt, consulted an attorney who advised them that the plan could be considered a conspiracy to defraud. Chalmers and Brunt left the company.

Exelon, one of Heathgate's uranium customers, sued. The lawsuit was settled for about \$41 million. Because of the increased uranium price, Blue ended up well in front despite the cost of the settlement with Exelon – more than \$200 million in front by some estimates. Blue was unrepentant: "It made more sense to, in essence, just pay the fine."

Blue has even been sued by his own company. Several years ago, ConverDyn, a uranium conversion plant jointly owned by GA and Honeywell, [sued](#) Blue, Heathgate and GA in relation to allegations of a failure to meet contractual obligations to deliver certain amounts of uranium.

Federal Resources Minister Martin Ferguson declined to comment when asked about GA / Heathgate's activities in 2009.

GA / Heathgate has repeatedly flown US politicians (and their families and aides) to Australia for high-level talks and it has paid for Labor MPs to travel to the US. The company has used the services of PR firm Hawker Britton, which includes many former Labor politicians and staffers.

Money well spent, it seems. In 2006, then SA Treasurer Kevin Foley said: "I have visited the Beverley mine and, recently, in San Diego I met Mr Neal Blue, the chairman of General Atomics – an outstanding company that is producing uranium oxide from the Beverley mine. I only hope that further deposits of uranium can be found. The sooner we can find it, dig it up and get it out of the country, the better."

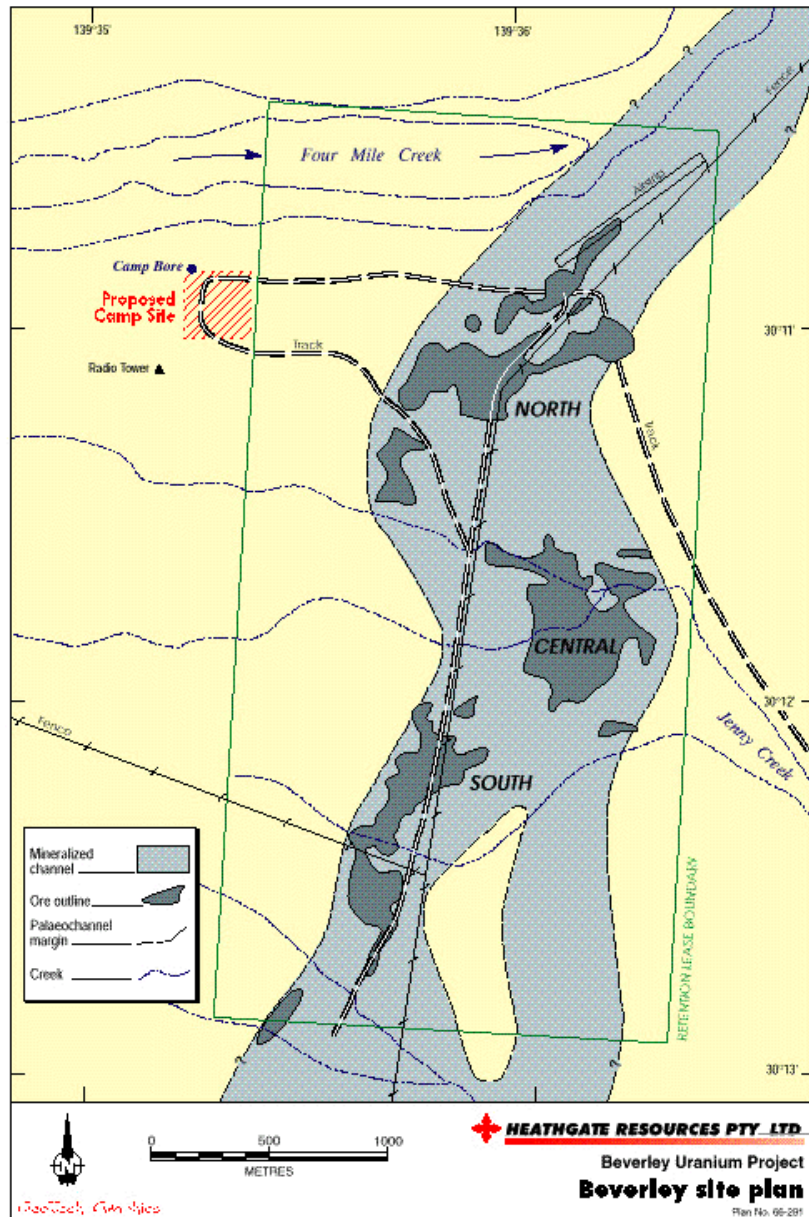
More information:

- Adnyamathanha Elders: <http://yurabila.wordpress.com>
- Journal articles, conferences papers etc. by Dr. Gavin Mudd: <http://users.monash.edu.au/~gmudd/publications.html>
- SXR Uranium One (Honeymoon mine) www.uranium1.com
- Senate References and Legislation Committee, October 2003, 'Regulating the Ranger, Jabiluka, Beverley and Honeymoon uranium mines' www.aph.gov.au/Parliamentary_Business/Committees/Custom_Contents/SenateCommittees/ecitactte/completedinquiries/200204/uranium/report
- A refresher on who's behind one of our uranium mines, The Punch, 2/8/12, www.thepunch.com.au/articles/a-refresher-on-whos-behind-one-of-our-uranium-mines

Videos:

- General Atomics – a colourful history www.youtube.com/watch?feature=player_embedded&v=tKeTXXL7Y_0

- Policy brutality at a protest at Beverley, May 2000
www.youtube.com/watch?feature=player_embedded&v=pogr787toC0



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BEVERLEY FOUR MILE URANIUM MINE

The Beverley Four Mile deposit lies 550 kms north-east of Adelaide, just west of the Beverley uranium mine. The project is a joint venture between Quasar Resources (75% – an affiliate of Heathgate Resources, which is in turn a subsidiary of notorious US corporation [General Atomics](#)) and Alliance Craton Explorer (ACE – 25% – a subsidiary of Alliance Resources). Heathgate is the proposed mine operator.



The Beverley Four Mile deposit contains an estimated 32,000 tonnes of U₃O₈ (indicated and inferred). Used in power reactors, that amount of uranium would produce over 4,500 tonnes of high-level nuclear waste (in the form of spent nuclear fuel) and enough plutonium to build over 4,500 nuclear weapons (1% plutonium in spent fuel; approx. 10 kgs of 'reactor grade' plutonium for one nuclear weapon).

The major customer for the uranium is likely to be the US, a nuclear weapons state which has no intention of fulfilling its binding disarmament obligations under the Nuclear Non-Proliferation Treaty and which has for many years blocked progress on the Comprehensive Test Ban Treaty and the proposed Fissile Material Cut-Off Treaty.

A 10-year mining lease was granted on 26 April 2012 spanning 12,206 hectares adjacent to the Beverley tenement, also owned by Heathgate. A Mining and Rehabilitation Program must next be approved by the South Australian Department for Manufacturing, Innovation, Trade, Resources and Energy before mining at Beverley Four Mile can commence.

The project will use the in-situ leach (ISL) mining method, planning wellfields of the same design as those currently used on the Beverley mining lease, and the construction of a satellite facility on Heathgate's existing Beverley mining lease close to the Four Mile deposits. The satellite plant would remove the uranium from the pregnant liquor, producing uranium bearing resin, which would then be trucked to the existing Beverley processing plant to strip the uranium from the resin and then

process the uranium. The liquid radioactive waste produced will be disposed of in the aquifers at Beverley. Alliance puts the mine's life at over 15 years, and claims it has the potential to be the largest and highest grade ISL mine in the world.

Alliance has formed a strategic alliance with Japanese Fortune 500 company ITOCHU Corporation. The terms of the alliance will allow ITOCHU Corporation, through its wholly-owned subsidiary NURA 3, to acquire up to 40% of Alliance or its subsidiary ACE, pending shareholder approval and the resolution of litigation with Quasar. Alliance anticipates that the funds raised through this alliance would be enough to bankroll the development of Four Mile as a stand-alone project with its own uranium processing plant at Four Mile, rather than as a satellite project of the Beverley uranium mine.

Turncoat Peter Garret (then Minister for the Environment) approved the Beverley Four Mile mine in July 2009. Only a Public Environment Report was required of the proponents rather than a more rigorous Environmental Impact Statement process.



'Beds are Burning' Protest in Melbourne against Peter Garrett's approval of Beverley Four Mile. See the video at www.youtube.com/watch?v=jXGrFBqZfSM

Although it had also been approved at the state level, granting of a mining lease was delayed due to litigation between the joint venturers concerning the Native Title Agreement and other matters, including ACE accusing Quasar and Heathgate of withholding information regarding the prospectivity of the Four Mile deposits.

The litigation concerning the Native Title Agreement has been resolved, allowing for the registration of a Native Title Mining Agreement and the granting of a mining lease, although the companies remain in the courts in relation to the other matters.

Native Title and Adnyamathanha Traditional Owners

In South Australian law, a Native Title Agreement is required for a mining lease to be granted. However, Native Title holders have no legal right to veto mining on their land. If an agreement cannot be "negotiated", the matter is referred to the Environment, Resources and Development (ERD) Court to make a determination. A determination by the ERD Court is considered a Native Title Agreement for the purposes of the law and the granting of a mining lease.

In a 15 July 2009 [statement](#), Adnyamathanha Elders Enice Marsh and Geraldine Anderson called on Peter Garrett to reverse his decision at least until the completion of an investigation being conducted by the SA government into long-standing Aboriginal heritage concerns raised by Adnyamathanha Traditional Owners.

Enice Marsh [said](#) Aboriginal heritage clearance was never given: "Women speaking out on sacred women's sites were silenced and the anthropologists never ever completed those reports. If there are dissatisfied people about where the drilling is going to take place, surely that should be in the report."

Geraldine Anderson [said](#) destroying sites goes against cultural laws. "This Labor Government is saying sorry to the Stolen Generation, on the other hand they're taking the way of destroying our sites and taking our identity away. So when's this going to stop?"

Enice Marsh said: "What more can we do to protect our land from being raped by mining companies that are allowed to pollute the water and carve up the waterways, even contaminate the soil with radioactive waste? The general public need to know what is going on and ordinary people need to take action to stop the abuse of our environment."

In addition to their battle with state and federal governments and mining companies, some Adnyamathanha Elders are battling within their own community. They have formed an Elders Group as a separate forum from the Adnyamathanha Traditional Lands Association. Enice Marsh [said](#): "There have been many attempts over the past 10 years to try and bring greater accountability to what's happening in Native Title, and to stop the ongoing assault on our Yarta (country). Many of us have tried with very little resources, limited understanding of the legal system and environmental laws, and despite a mountain of bullying, lies and deceit from mining companies, lawyers, and self-inflated thugs in our own community who dare to call themselves 'leaders'."

Adnyamathanha community member Jillian Marsh, who has completed a PhD thesis on the Beverley mine, [said](#): "The native title process is not a process that offers any decision making power for Aboriginal people and there are regulations and requirements under the Aboriginal heritage legislation that are yet to be addressed. ... Quasar Resources has actually formally stated in one of their archaeological reports that they don't want women participating in work area clearance, which is totally unacceptable."

Even those Adnyamathanha custodians who supported the agreement to mine Beverley Four Mile seem unimpressed with the process. Vince Coulthard, chair of the Adnyamathanha Traditional Land Association, [told](#) ABC radio on 17 July 2009: "Well I think people have come to the understanding that if they didn't support it, it's going to happen in any case so the best thing to do is to negotiate an agreement."

In-situ leach mining

Like the nearby Beverley mine, Beverley Four Mile will be an in-situ leach (ISL) mine. Dr Gavin Mudd, a lecturer in the Department of Civil Engineering at Monash University, said: "My review of the available literature across the world dispels the myths promulgated by ISL uranium mining companies. It is not an environmentally benign method of uranium mining – it is inherently risky and is unlikely to meet 'strict environmental controls'. The ISL technique treats ground water as a sacrifice zone and the problem remains 'out of sight, out of mind'."

In addition to the pollution of groundwater, another feature of ISL mining is surface contamination from spills and leaks of radioactive solutions. The SA Department of Primary Industry and Resources [lists](#) 59 spills at Beverley from 1998–2007.

Four Mile uranium to be restarted

Kristie Batten, 24 October 2012, [miningnews.net](#)

DEVELOPMENT of the Four Mile uranium project in South Australia will be restarted, despite protests from minority partner Alliance Resources, though its shares jumped 55% on the news. A vote was held today with 75%-owner Quasar Resources in favour of a restart, based on a start-up plan.

The start-up plan proposes an in-situ recovery operation to begin at Four Mile East in the June quarter of next year, ahead of first uranium sales in the September quarter. It also proposes uranium capture at Heathgate Resources' Pannikan satellite plant with elution, precipitation, drying and packing at Heathgate's Beverley plant. Heathgate is an affiliate of Quasar.

The start-up program and budget runs for 16 months and suggests production of 2.1 million pounds of uranium oxide at cash operating costs of \$A25.46 per pound, not including wellfield development costs, or \$40.33/lb including wellfield costs. Cumulative cash expenditure until the end of 2013 will be \$97.8 million, while \$12 million will be spent on regional exploration. Uranium oxide sales prices are forecast to be \$US62.58/lb next year.

Alliance voted against the plan because it favoured construction of a stand-alone plant. Quasar said the start-up plan allowed for a staged start of mining operations to consider actual production rates before full-scale production facilities were constructed.

This is not the only disagreement between the partners, with several legal cases still awaiting resolution. Alliance launched proceedings against Quasar and Heathgate in 2009 to access joint venture documentation after Quasar refused. The case is awaiting judgement, while judgement in the Federal Court is also reserved in a damages case against Quasar. Alliance is also seeking the restitution of Quasar's 75% stake in the project. Alliance said the legal action against Quasar and Heathgate was not affected by today's news and would continue.

More information:

- Anggumathanha Elders: <http://yurabila.wordpress.com>, see esp. <http://yurabila.wordpress.com/media-releases/>
- ISL mining critiques www.foe.org.au/anti-nuclear/issues/oz/u/isl
- ISL mining: Journal articles, conferences papers etc. by Dr. Gavin Mudd: <http://users.monash.edu.au/~gmudd/publications.html>
- Senate References and Legislation Committee, October 2003, 'Regulating the Ranger, Jabiluka, Beverly and Honeymoon uranium mines' www.aph.gov.au/Parliamentary_Business/Committees/Custom_Contents/SenateCommittees/ecitactte/completedinquiries/200204/uranium/report
- General Atomics / Heathgate environmental record, spying on environment groups, military links etc. www.foe.org.au/anti-nuclear/issues/oz/u/isl/blue
- http://en.wikipedia.org/wiki/Four_Mile_uranium_mine
- Quasar Resources: www.quasarresources.com.au/project.aspx?id=2&pid=21
- Alliance Resources: www.allianceresources.com.au/IRM/content/project_fourmileuranium.html
- world-nuclear.org/info/Australia_Mines/pmines.html
- Information/misinformation from then Environment Minister Peter Garrett www.environment.gov.au/cgi-bin/epbc/epbc_ap.pl?name=current_referral_detail&proposal_id=4252
- SA government / company documents: www.pir.sa.gov.au/minerals/mines_and_developing_projects/developing_projects/documents_and_reports

- Secretive arms tycoon behind new uranium mine, Ben Cubby, July 16, 2009, www.smh.com.au/environment/secretive-arms-tycoon-behind-new-uranium-mine-20090715-dllw.html
- Police hire private spies to snoop online, Richard Baker and Nick McKenzie, 26 November 2008, www.smh.com.au/news/technology/security/police-hire-private-spies-to-snoop-online/2008/11/26/1227491580370.html
- A refresher on who's behind one of our uranium mines, The Punch, 2/8/12, www.thepunch.com.au/articles/a-refresher-on-whos-behind-one-of-our-uranium-mines

Videos:

- General Atomics – a colourful history www.youtube.com/watch?feature=player_embedded&v=tKeTXXL7Y_0
- Policy brutality at a protest at Beverley, May 2000 www.youtube.com/watch?feature=player_embedded&v=poqr787toC0

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BEVERLEY NORTH URANIUM MINE

The Beverley North in-situ leach (ISL) uranium mine is owned and operated by Heathgate Resources, owner of the adjacent Beverley uranium mine and 100% owned subsidiary of US corporation General Atomics. Adjoining the Beverley mining lease directly to the North, it lies between the northern Flinders Ranges and Lake Frome on Adnyamathanha country.

Beverley North was approved by the South Australian government in November 2010 as a field leach trial, after being ruled "not a controlled action" by the Federal Environment Minister, meaning that despite being a nuclear action it does not trigger the Environment Protection and Biodiversity Conservation (EPBC) Act. This designation precludes the requirement for environmental assessment under the Act, which often includes, for example, an Environmental Impact Statement, and leaves environmental assessment to the South Australian government. Furthermore, it relegates trial ISL uranium mines to a category less than a nuclear action (as nuclear actions trigger the EPBC Act), even though uranium mines are supposed to trigger the Act, and even though trial mines typically have the same environmental impacts as commercial mines (if not on the same scale).

Uranium from the trial mine is trucked to the existing processing plant at the Beverley mine for processing and assessment of yield. The two uranium deposits currently targeted by the trial are conceived of as the first "uranium satellite mines"

(around the Beverley mine), and considered the "nuclei" of the Beverley North project, with Heathgate [claiming](#) further mining is expected to follow.

Heathgate has two other exploration licences in the immediate surrounding area (south and east of the Beverley uranium mine), totalling 2097 square kilometres. They are both jointly owned with Giralia Resources, with Heathgate retaining a 75% share in each licence.

Impacts on groundwater are assessed within a framework of ensuring groundwater remains within the same water quality category of use it was prior to the trial. Heathgate claims that the groundwater in the target aquifer is of a low quality preventing its use as potable water or for irrigation, due to its salinity and the presence of uranium and fluoride. The only commitment made is that post mine closure the groundwater will remain in the same (low quality) use category, rather than returning the groundwater in the aquifer to the same state it was prior to the trial. Conceivably, the groundwater in an aquifer may be left contaminated with much higher levels of uranium and other heavy metals, now in a biologically mobile form as a result of the ISL process, and remain within the same low quality category of use it was prior to the trial.

Between 1998 and 2012, Heathgate reported 59 spills at the Beverley mine, with some of these incidents involving multiple spills. In February 2012, Heathgate estimates that 30–34 cubic metres of pregnant liquor escaped from a damaged valve into surface run-off. The spill was not confined due to flooding of the site and the local creek. The report summary [states](#) that "radiation levels are expected to be low due to dilution by stormwater."

More information:

- Applications related to Beverley North:
www.pir.sa.gov.au/minerals/public_notices/beverley_north_mining_lease_applicationper
- Mining and Rehabilitation Program:
https://sarigbasis.pir.sa.gov.au/WebtopEw/ws/samref/sarig1/image/DDD/ENV12046_R201000357

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HONEYMOON URANIUM MINE

Honeymoon is a small uranium deposit located 75 kms north-west of Broken Hill. The Honeymoon – East Kalkaroo deposit occurs in porous sand of the Yarramba

palaeochannel at a depth of 100-120 metres and extending over about 150 hectares.

The deposit was discovered in 1972. Plans were developed in the late 1970s to extract the uranium oxide by in situ leaching (ISL), and \$12 million was spent in preparation. Draft and Final Environmental Impact Statements were produced, and both South Australian and Commonwealth environmental approval was subsequently obtained in 1981 for production to 450 t/yr. Field tests of the ISL process were carried out and a \$3.5 million, 110 t/yr pilot plant was built, but the project was abandoned in 1983 because of the incoming federal Labor government's 'three mines' uranium policy.

Acid leach mining was trialled again from 1998-2000. A June 2000 draft EIS covered the Honeymoon – East Kalkaroo deposits on five Mineral Claims and approval of this was granted in November 2001.

In 2005 Southern Cross Resources was taken over by Afllease to form Uranium One Inc. In 2006 Uranium One quoted indicated resources of 2900 tonnes U₃O₈ plus 900 tonnes (at 0.074% grade) at the adjacent East Kalkaroo deposit.

In October 2008 Uranium One announced a joint venture with Mitsui (49%) to complete development of the project, with Mitsui paying \$104 million towards the eventual \$138 million cost. Since 2009, 51.4% of Uranium One has been owned by Russia's ARMZ.

Commercial in-situ leach (ISL) mining began in 2011. Nevertheless, in May 2012 Mitsui [announced](#) that it was withdrawing from the project as it "could not foresee sufficient economic return from the project."

First production was in September 2011, with 45.4 tonnes of U₃O₈ produced in 2011. Just 37 tonnes of U₃O₈ was produced in the first quarter of 2012 although the production rate is expected to increase. In 2012 production is expected to be 275 tonnes U₃O₈ at \$47/lb – three times the company's average cost of production in Kazakhstan. A mine life of six years is expected. The processing plant is modular and can later be relocated if required.

ISL mining involves pumping acid into an aquifer. This dissolves the uranium ore and other heavy metals and the solution is then pumped back to the surface. The small amount of uranium is separated at the surface. The liquid radioactive waste – containing radioactive particles, heavy metals and acid – is simply dumped in groundwater.



Friends of the Earth action in Adelaide, 2006

More information:

- Journal articles, conferences papers etc. by Dr. Gavin Mudd:
<http://users.monash.edu.au/~gmudd/publications.html>
- SXR Uranium One (Honeymoon mine) www.uranium1.com
- Senate References and Legislation Committee, October 2003, 'Regulating the Ranger, Jabiluka, Beverly and Honeymoon uranium mines'
www.aph.gov.au/Parliamentary_Business/Committees/Custom_Contents/SenateCommittees/ecitactte/completedinquiries/200204/uranium/report
- www.world-nuclear.org/info/Australia_Mines/emines.html

Videos:

- occupation of the Honeymoon uranium mine in 1982,
www.softscan.org/HoneyMoon.html
- Friends of the Earth action in Adelaide, 'Call the Honeymoon off',
<http://australianmap.net/honeymoon-uranium-mine>

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OBAN URANIUM DEPOSIT

The Oban trial in-situ leach (ISL) uranium mine in north-east South Australia lies 105 kms from Broken Hill on Mulyungarie Station. It is owned and operated by Oban Energy, a fully-owned subsidiary of Curnamona Energy.

Curnamona Energy was set up by Havilah Resources in 2004 specifically to explore uranium deposits on its South Australian tenements. Havilah retained an interest of 45.4% in the company. Both Curnamona and Havilah have a number of exploration licences in the region, with Curnamona's tenements covering 8000 square kms.

In April 2007, the Australian Government Department of Environment and Water Resources ruled that the proposed ISL trial mine was not a "controlled action" under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), continuing a trend begun in the late 1990s in the Beverley field trial approval process, leaving trial ISL mines outside the operation of the EPBC Act and its requisite environmental assessment processes.

Trial ISL mines have the same environmental impacts as commercial mines. As a Friends of the Earth [briefing paper](#) notes: "Despite being called 'trials', such mines inject real chemicals into real groundwater, extract real uranium and produce real radioactive waste."

Field trials began mid-2010 and by late 2011 the trial was suspended due to low recoveries of uranium from the leaching process. Bench laboratory tests are currently being conducted with alkaline leachate (instead of acid), and (perhaps conceding that the problem may not be overcome) the company is re-evaluating the inferred resource estimate of the deposit.

As a result of the failure of the leaching process, the company directors have written off over \$3 million in exploration expenditure associated with the Oban site. Exploration of other potential deposits with similar geological characteristics has ceased and associated capital expenditure written off. As of 31 January 2012, the company had available funds of approximately \$1.52 million.

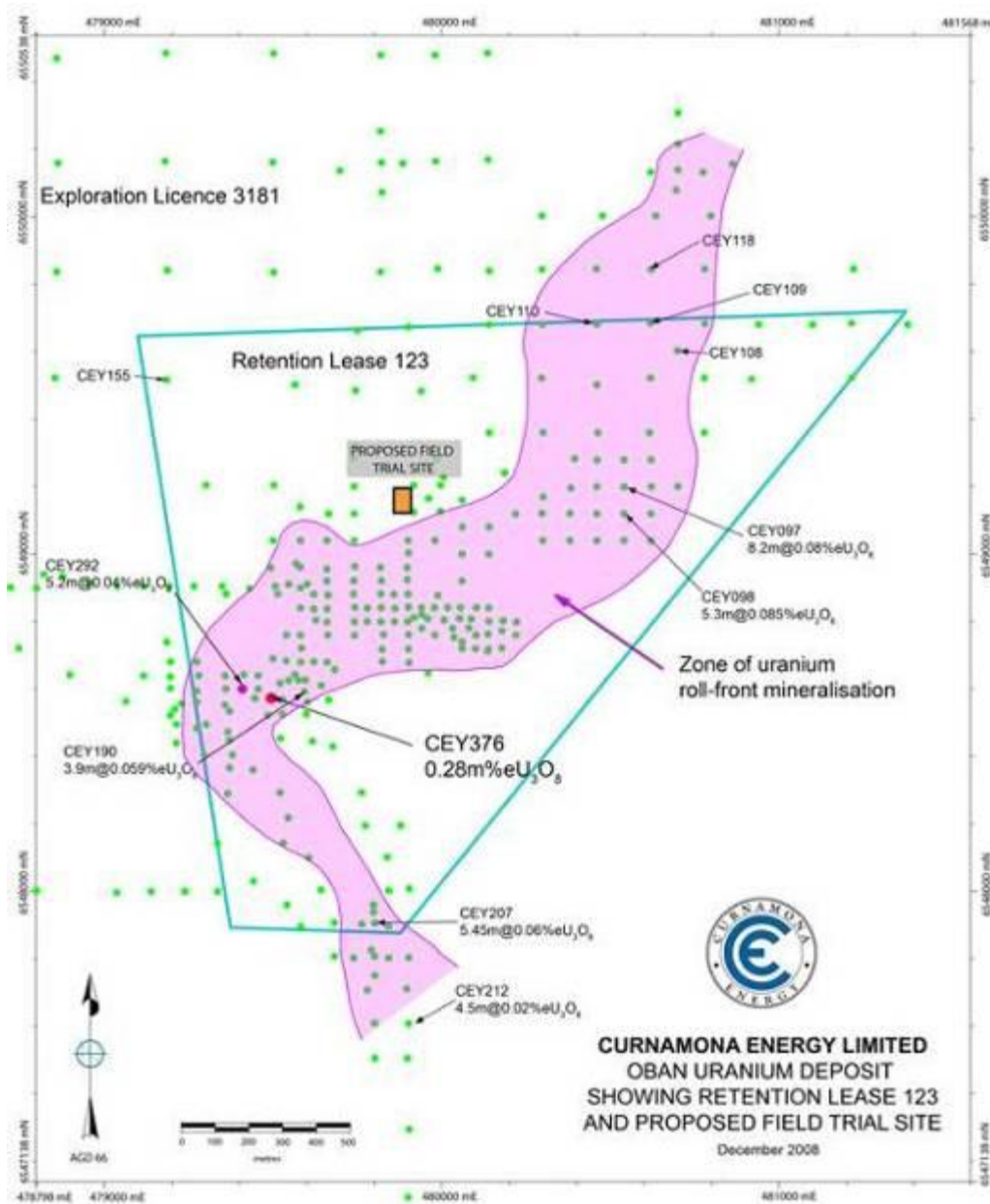
Curnamona Energy is currently in the midst of a merger with Havilah Resources, by way of an off-market takeover bid offering Curnamona shareholders one Havilah share for every five Curnamona shares they own.

Havilah is a junior explorer with the stated goal of becoming a significant copper, gold and molybdenum producer. It has extensive exploration tenements in the surrounding area, which are registered as seeking uranium amongst other minerals, but no operating mines as yet. Its nearby Portia open-pit gold mine is in the final stages of the approval process, and will see Havilah transition from an exploration company to production.

Update – December 2012: Havilah takeover now complete with the share buy-back leading to Havilah owning 91.37% of issued shares by June 2012. The remaining interest in Curnamona was compulsorily acquired by Havilah, and Curnamona Energy was removed from the ASX.

More information:

- Australian Conservation Foundation, "Australian Conservation Foundation submission to Referral Ref. No. 2007/3331 'Oban Uranium Deposit Field Leach Trial, South Australia'" 26 March 2006, www.acfonline.org.au/resources/submission-referral-ref-no-20073331-oban-uranium-deposit-field-leach-trial-south-australia
- Mining programs and reports associated with Oban available [here](#).



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SAMPHIRE URANIUM DEPOSIT (formerly known as Mullaquana)

In January 2011 federal approval was given to Samphire Uranium, wholly owned by South Australian company Uranium SA, for a trial In Situ Leach (ISL) uranium mine

approximately 20 kms south-west of Whyalla on the Eyre Peninsula and 3.5 kms from the coast. It was ruled "not a controlled action" under the Environment Protection and Biodiversity Conservation Act, hence not triggering the requirement for an Environmental Impact Statement.

At the state level Uranium SA / Samphire Uranium is awaiting approval (as of May 2012) for a Retention Lease over the Blackbush deposit, which is the target of the proposed trial mine. This is the first requirement in a two-step regulatory process. If the mining tenement is granted, the company will need to submit a Program for Environmental Protection and Rehabilitation (PEPR). The company has engaged the Australian Nuclear Science and Technology Organisation to do a series of tests with resins found to facilitate the extraction of uranium from saline solutions, as the formation waters in the sediments containing uranium are saline to hyper-saline. At the time of discovery the extraction of uranium from saline solutions was not commercially practical.

ISL mining routinely contaminates groundwater with heavy metals and radioactive materials by pumping acid into an aquifer to dissolve the uranium and other heavy metals, pumping the solution back to the surface to extract the dissolved uranium, and then pumping the radioactive waste produced back into the aquifer.

Despite the half-life of some radionuclides being tens of thousands of years, the Retention Lease proposal does not assess the impact of the mobilisation of radionuclides and heavy metals in the target aquifer by the ISL process and how this will impact on the future use of the groundwater or the wider ecosystem.

The proposal assumes that since the salinity, radium and uranium concentrations of the target aquifer exceed the limits for any agricultural or potable use, it is acceptable to mobilise radionuclides and heavy metals, and use the aquifer as a radioactive waste dump. It does not address whether the radium and uranium naturally existing in the target aquifer are in the same bioavailable form as the radionuclides that are a product of the ISL process. It also ignores the fact that even if the target aquifer is taken to be confined (which is arguable), the groundwater in this aquifer is not eternally confined, but part of a hydrologic cycle that moves water throughout the ecosystem, from rainfall, to rivers, to underground storage. Given that ISL mining mobilises radionuclides with extremely long half-lives, the long residence time for water in groundwater systems is no guarantee that these radionuclides will not eventually move to another part of the ecosystem, such as the Spencer Gulf.

The trial was originally planned to continue for 12 to 18 months and produce 36 tonnes (120 drums) of yellowcake and 10-20 cubic metres of waste. However, a re-

evaluation of the Samphire Project was announced in December 2011, following the identification of uranium mineralisation in the bedrock underlying the recognised Blackbush deposit. As the newly identified uranium would not be extractable by the ISL method which is only appropriate for near-surface deposits, the company is now considering the option of open-pit mining, and has commenced a drilling program. At this stage the ISL trial is planned to proceed, pending approvals, but at a reduced scale. Uranium SA anticipates that site work will commence in 2012.

Uranium SA claims the mineralisation of the Blackbush deposit defined to date may be sufficient to support a commercial mine life of 5–10 years. It is estimated that the deposit could produce 12,700 tonnes of uranium oxide. Add this to the 6,300 tonnes estimated from the Plumbush deposit, also within the Samphire project.



Samphire uranium project

More information:

- Uranium SA: www.uraniumsa.com.au/projects/mullaquana-overview.html
- Uranium SA, Retention Lease Proposal on Mineral Claim 4280 for a Uranium In-Situ Recovery Field Trial, 5 August 2011, <ftp://central.pir.sa.gov.au/Minerals/Samphire.pdf>
- Friends of the Earth Adelaide & West Mallee Protection, "Joint submission on Retention Lease Proposal on Mineral Claim 4280 for a Uranium In-Situ Recovery Field Trial," www.adelaide.foe.org.au/campaign-mullaquana-project/
- Mudd, Gavin. July 1998, *An Environmental Critique of In Situ Leach Mining: The Case Against Uranium Solution Mining*, A Research Report for Friends of the Earth (Fitzroy) with The Australian Conservation Foundation, Victoria University of Technology, [www.powertechexposed.com/An Environmental Critique of ISL.pdf](http://www.powertechexposed.com/An%20Environmental%20Critique%20of%20ISL.pdf)

- Mudd, Gavin, October 2009, *ISL uranium mining far from 'benign,'*
www.foe.org.au/anti-nuclear/issues/oz/u/isl/articles

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VICTORIA

FRENCH ISLAND – FORMER PROPOSED NUCLEAR POWER SITE

In mid-1967, Victoria's State Electricity Commission applied to the Lands Department for the reservation of 400 acres of French Island in Western Port Bay for future construction of a nuclear power plant. The SEC was also considering sites at Portland, Kirk (south of Werribee) and Giffard (on the Gippsland coast). The Kirk and French Island sites are close to the Melbourne metropolitan area. These nuclear power plans were later abandoned.

To get a sense of the devastation that would be caused by a Chernobyl-scale nuclear disaster at French Island, choose the Western Port option from the online '[Chernobyl in Australia](#)' map, play around with the different wind settings, and click the pink marker for information on radiation exposure levels and settlement / resettlement impacts.

The Australia Institute considered issues associated with locating a nuclear power plant at Western Port in a 2007 [report](#) and noted the following:

- Medium earthquake risk – 17 recorded earthquakes – several faults and folds identified.
- A number of important heritage and ecological sites in the area, including Western Port Ramsar wetland, HMAS Cerberus Marine and Coastal Commonwealth Heritage Area, Yaringa Marine National Park and French Island National Park. Numerous nationally-listed threatened species and migratory species are found in the area.
- About 8% of the wider region's workforce is employed in tourism (Mornington Peninsula, Melbourne East and Philip Island).

More information on the French Island nuclear power plant plan:

- trove.nla.gov.au/website/result?q=%22french+island%22+nuclear+victoria
- http://en.wikipedia.org/wiki/French_Island_%28Victoria%29#Proposed_nuclear_power_plant_site

Friends of the Earth

In 1974, Friends of the Earth, Australia (FoE) decided to hold its inaugural national meeting at French Island as the threat of a nuclear power plant still loomed. The FoE

Australia network was growing quickly at the time. In particular the first [bike ride against uranium](#), which converged on Canberra, built FoE's profile to such an extent that, in the words of Chain Reaction editor Richard Nankin, "we now work in overcrowded offices, with people coming and going at all hours, the phones always ringing madly". The history of FoE's campaign work for a 'renewable rather than radioactive' Australia is detailed in the book '[30 Years of Creative Resistance](#)' (PDF) and for current information see the [FoE Australia](#) website and the [local FoE group websites](#).



Police violence against an anti-uranium bike ride convergence in Canberra, 1977.



1976 cycle against uranium – Parliament House, Canberra



Videos:

- Friends of the Earth Radioactive Exposure Tour 2010
www.youtube.com/watch?v=JXjFitw8Wcc
- Short action highlighting Martin Ferguson's plan to impose a nuclear dump on Aboriginal land www.youtube.com/watch?v=maoG115YAeU
- Two 1977 'Ride Against Uranium' videos produced by FoE's 'Bike Ride Committee' (the previous year, FoE blew the whistle on a [global uranium cartel](#)).
www.youtube.com/watch?v=adFRFW003aY and
www.youtube.com/watch?v=SDrXktcefwg&feature=relmfu
- 'Beds are Burning' protest www.youtube.com/watch?v=jXGrFBgZfSM

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SOUTH GIPPSLAND IRRADIATION PLANT

South Gippsland is home to one of Australia's food irradiation plants. In Australia all irradiation plants use cobalt-60, a nuclear material that emits gamma rays. Herbal teas, spices and some tropical fruits are permitted for irradiation in Australia.

Irradiation changes food in ways that have not been adequately tested for safety. Irradiation depletes food and vitamins and causes the formation of radiolytic products whose effect on human health is not known.

In 2009 the irradiation of cat food was banned in Australia after nearly one hundred cats became ill and many died. This has prompted many pet food companies to review their policies regarding irradiation, recognising pet health concerns. The Australian government has yet to recognise that similar risks exist for human health.

Under Australian law, pet food, animal feed, therapeutic goods and complementary medicines are not classified as "food". These products can, therefore be irradiated with no labelling requirements. Many of these products are packaged and sold in a similar manner and on the same retailer shelves as products that are classified as "food". Consumers have no way to discern that the products fall under different regulatory bodies and therefore have differing labelling requirements.

More information: <http://foodirradiationwatch.org>

Short video on the problems with irradiation:

www.engagemedia.org/Members/kimk/videos/fifilm.mov/view

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WESTERN AUSTRALIA

MONTE BELLO ISLANDS – FORMER NUCLEAR WEAPONS TEST SITE

The British government / military conducted three nuclear bomb tests at Monte Bello Islands off the coast of Western Australia . While the Islands were uninhabited, the nuclear tests conducted there spread radioactivity across large portions of mainland Australia – for example one test resulted in 'radioactive rain' on the Queensland coast.

Operation Hurricane (Monte Bello Islands, Western Australia)

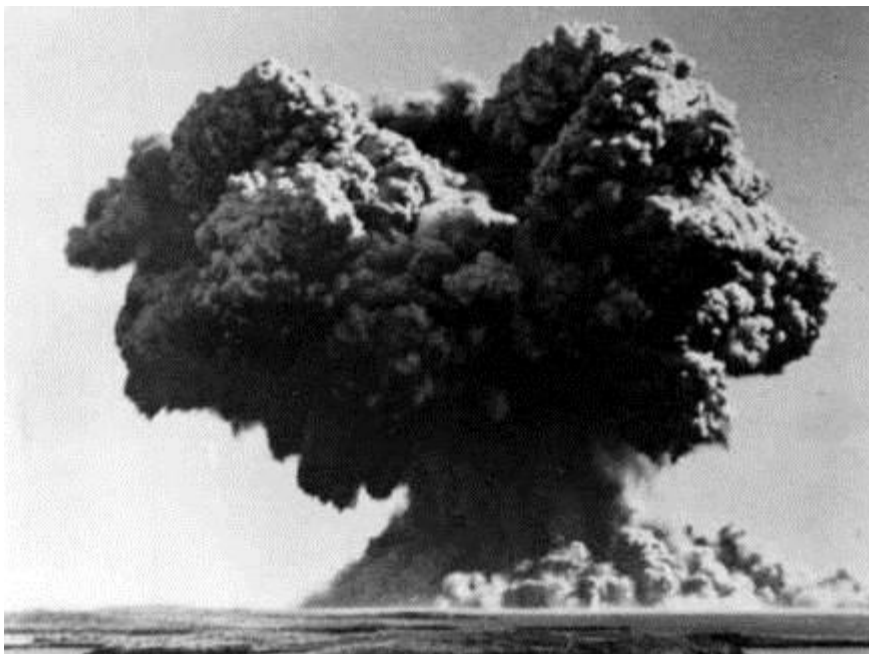
3 October 1952 – 25 kilotons – plutonium

Operation Mosaic (Monte Bello Islands, Western Australia)

G1 – 16 May 1956 – Trimouille Island – 15 kilotons – plutonium

G2 – 19 June 1956 – Alpha Island – 60 kilotons – plutonium

The 1983–84 Royal Commission (p.261) concluded: "The presence of Aborigines on the mainland near Monte Bello Islands and their extra vulnerability to the effect of fallout was not recognised by either [Atomic Weapons Research Establishment – UK] or the Safety Committee. It was a major oversight that the question of acceptable dose levels for Aborigines was recognised as a problem at Maralinga but was ignored in setting the fallout criteria for the Mosaic tests."



Operation Hurricane, 3 October 1952, the first nuclear bomb test in Australia.

Update:

Atom bomb veterans remember life-changing blast

Brendan Trembath, 3 Oct 2012, <http://www.abc.net.au/news/2012-10-03/atom-bomb-veterans-remember-blast-that-changed-lives/4294276>

Sixty years since Britain tested its first atom bomb in Australia, those who witnessed the blast - many who now have cancer - have reunited to talk about how it changed their lives. The veterans are still seeking an apology from the Federal Government and appropriate health care for them and their children.

Official records say those serving on the HMAS Murchison on October 3, 1952, were 70 miles away when Britain successfully detonated an atomic bomb on the Monte Bello islands, off the coast of the Pilbara in Western Australia. But to this day, many who were there say they were much closer.

Michael Rowe was on board the ship and remembers the moment the bomb went off. "We were told to face east, which we did, and then we were told we could turn around and face west and we saw the first British atom bomb go off," he said.

Mr Rowe is among those who attended a lunch at a Navy base in Sydney with other veterans and their families to mark the anniversary. "I think it's an important day in our lives. It's 60 years after we were at Montebello when the Brits set off their bomb," he said.

He smiles when he recalls how underdressed they were. "We were clothed to protect ourselves in a pair of shorts and sandals. That's all," he said.

Mr Rowe is also among those who say they were much closer to ground zero than what is officially recorded and he has photos which he says proves it.

"There's been big arguments over the years about how far away the Murchison was from the actual bomb site, but I had a little tiny camera that I had hidden down inside my shorts and I took a photograph of that bomb going off, a very clear photograph of the bomb going off," he said.

"All the records show that we were 70 miles away and there was no way in the world you could've taken this photograph from 70 miles."

Mr Rowe says he and others onboard the ship think they were about 12 to 15 nautical miles east of the blast site.

I've had a great life. Done lots of things, been lots of places but I always seem to have something wrong with me and it was only on September 19 that I was diagnosed with multiple cancers, terminal cancers.

He is one of the 23 known surviving national servicemen from HMAS Murchison. But like many who were there that day, Mr Rowe now has cancer.

"I've had a great life. Done lots of things, been lots of places but I always seem to have something wrong with me and it was only on September 19 that I was diagnosed with multiple cancers, terminal cancers," he said.

Fellow crew member Ken Palmer was not well enough to attend the lunch but his wife Robyn came in his place.

"He has secondaries from thyroid cancer as a result of the blast. They were exposed to the radiation, but he's doing well, yes, he's doing well," she said.

But some veterans are reluctant to make the link between what they witnessed and health problems later in life.

Ross McPhee has cancer but does not think it is from witnessing the atom bomb.

"I had a wonderful time in the national service. I can't blame them for any ill effects that I might have suffered in my subsequent life," he said.

"That was probably just through my own indiscretion - lung cancer from smoking, et cetera."

Mr McPhee does acknowledge the nuclear test affected him another way.

He said expressed his fear in a rare letter to his mother.

"At that time we were in conflict with the Russians and I thought if they get their hands on this weapon and they fire it, this could affect mankind as we knew it at the time and it frightened me," he said.

More information on the British nuclear tests in Australia:

- www.foe.org.au/anti-nuclear/links#6

Video:

- Soundless video of the first nuclear bomb test carried out in Australia, 3 October 1952: www.youtube.com/watch?feature=player_embedded&v=HA1cMPti7EA

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KALGOORLIE URANIUM TAILINGS

More than 5,000 tonnes of tailings from the Yeelirrie uranium deposit, near Wiluna, were buried in the Hannan area of Kalgoorlie after BHP stopped testing processing ore there in the 1980s. In 2012, damage to a security gate allowed children to enter the site on dirt bikes. BHP Billiton said it would improve security.

More information:

- www.abc.net.au/news/stories/2010/03/03/2835501.htm?site=goldfields
- <http://kalgoorlie.igwn.com.au/index.php/news/prime-news/children-accessing-old-uranium-site,306471>



50 people attended an anti-uranium protest in Kalgoorlie in 2010.

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[WILUNA URANIUM DEPOSIT \(LAKE WAY AND CENTIPEDE\)](#)

The Wiluna uranium deposits – Lake Way and Centipede – are located 45 kms from Wiluna in the WA Goldfields on Martu country. The deposits, discovered in 1972, are estimated to contain 11,000 tonnes of uranium

Uranium exploration in the Wiluna region in the 1980s left a legacy of pollution and contamination. Radiation levels more than 100 times normal background readings have been recorded despite the area being 'cleaned' a decade ago. Even after the 'clean up', the site was left with rusting drums containing uranium ore, and a sign reading "Danger – low level radiation ore exposed" was found lying face down in bushes.

Greens parliamentarian Robin Chapple said in 2000 that: "We found corroded drums of radioactive ore, piles of uranium ore and remnants of wire netting and fence posts. We found some of the most toxic material just being left to blow in the breeze."

In August 2000, coordinator of the Wiluna-based Marruwayura Aboriginal Corporation Steve Syred said that until about 1993, 100–150 people were living at an old mission three kilometres from the spot where high radiation levels were

recorded. Mr. Syred told the Kalgoorlie Miner that the Aboriginal community had unsuccessfully resisted uranium exploration in the area in the early 1980s. Since then many people had lived in the area while the Ngangganawili Aboriginal Corporation was based near the site. Elders still hunted in the area.



A corroding drum left after uranium exploration in the 1980s.



A radiation warning sign left after uranium exploration in the 1980s.

See this 6-minute [video](#) on the health effects of radiation and elevated radiation levels at Wiluna as a result of uranium exploration in the 1980s.

Recent developments

Toro Energy has submitted a draft Environmental Review Management Plan to the WA EPA – it was released for public comment in mid-2011. There were over 2060 submissions made to the EPA in opposition to the proposed mine. The ERMP was incomplete on release to the public yet was still approved by the EPA – as of July 2012, formal appeals to the EPA approval had yet to be resolved (and further state and federal approvals are required beyond EPA approval). One of the nine appeals

was lodged by Aboriginal elder and Wiluna resident Glen Cooke – his video appeal is posted at [youtube.com/user/BUMPcollective](https://www.youtube.com/user/BUMPcollective).

Mr Cooke said: "Toro Energy they only talk to a few people, always the same people. It's not right, the people from Bondini sometimes they don't know about meetings, or their not invited to meetings or they can't get to meetings. This is not right." (Bondini is the community closest to the proposed mine.)

There is opposition to this project from the community in Wiluna just 17 kms away from the proposed mine who are concerned about background levels of radiation and water consumption.

Toro is buying up tenements close to Wiluna and plans to develop those sites, so the Wiluna site could be the catalyst for a network of small mines around Wiluna. Toro is also exploring other sites further afield in WA, including the Birrindudu site in a joint venture with Cameco, Kintore on the WA/ NT border, and Lake McKay in north-east WA. Toro also has exploration projects in the NT at Reynolds Range, Armadeus, Wiso and Tanami. Toro also has several uranium exploration mines in Namibia.

Toro promotes dangerous radiation junk science

Toro has become embroiled in a [controversy](#) over its repeated promotion of scientifically-unsupported claims that low-level radiation is beneficial to health. In 2012, a joint letter signed by 45 Australian medical doctors called on Toro to stop promoting dangerous junk science; not a single doctor or radiation scientist came to Toro's defence. As of July 2012, neither the WA nor federal governments had taken action against Toro for promoting dangerous junk science. Toro [claimed](#) that it has promoted a range of views on the radiation/health debate but there appears to be no publicly available evidence to support the claim and Toro has declined repeated requests to justify it.

Here is the text of the joint doctors' statement:

Toro Energy is an Australian company involved in uranium exploration in Western Australia, the Northern Territory, South Australia and in Namibia, Africa. The company's most advanced project is the proposed Wiluna uranium mine in the WA Goldfields.

Toro Energy has consistently promoted the fringe scientific view that exposure to low-level radiation is harmless. Toro Energy has sponsored at least three speaking visits to Australia by Canadian scientist Dr Doug Boreham, who argues that low-level radiation is actually beneficial to human health.

Those views are at odds with mainstream scientific evidence and expert assessment. For example:

- *A 2010 report by the United Nations Scientific Committee on the Effects of Atomic Radiation states that "the current balance of available evidence tends to favour a non-threshold response for the mutational component of radiation-associated cancer induction at low doses and low dose rates."*
- *The 2006 report of the Committee on the Biological Effects of Ionising Radiation (BEIR) of the US National Academy of Sciences states that "the risk of cancer proceeds in a linear fashion at lower doses without a threshold and ... the smallest dose has the potential to cause a small increase in risk to humans." The report also concludes that claims that low-level radiation exposure may be beneficial to human health are "unwarranted".*
- *A study published in the Proceedings of the National Academy of Sciences (US) in 2003 concluded that: "Given that it is supported by experimentally grounded, quantifiable, biophysical arguments, a linear extrapolation of cancer risks from intermediate to very low doses currently appears to be the most appropriate methodology."*

It is irresponsible for Toro Energy to consistently promote fringe scientific views and to ignore mainstream scientific evidence and expert assessment.

Even more alarming is that Toro Energy has sponsored "employee radiation training" by Dr Boreham. Recent scientific research has heightened concern about exposure to radon, the main source of radiation doses to uranium industry workers. In 2009, the International Commission on Radiological Protection concluded that radon gas delivers almost twice the radiation dose to humans as originally thought and the Commission is in the process of reassessing permissible levels. Previous dose estimates to miners need to be approximately doubled to accurately reflect the lung cancer hazard.

We call on Toro Energy to stop promoting fringe scientific views to uranium industry workers and to the public at large.

More information:

- Toro Watch: www.toro.org.au
- Toro Energy Ltd www.toroenergy.com.au
- WA Conservation Council submission to the EPA on the ERMP for Wiluna project (Word file)

[http://ccwa.org.au/sites/default/files/Wiluna%20ERMP%20Submission Final.doc](http://ccwa.org.au/sites/default/files/Wiluna%20ERMP%20Submission%20Final.doc)

- Historical info:
<http://web.archive.org/web/20060622155605/http://www.sea-us.org.au/no-way/lakeway.html>
- www.world-nuclear.org/info/Australia_Mines/pmines.html#lakeway

More information on the problems after uranium exploration in the 1980s:

- 'High radiation levels 'more than hundred times' safe level at Wiluna mine', *West Australian*, 21/7/2010, www.perthnow.com.au/business/high-radiation-levels-more-than-hundred-times-safe-level-at-wiluna-mine/story-e6frg2qc-1225895230599
- 'Radiation high at abandoned uranium mine', *Sunday Times WA*, 20/08/2000
- 'Radiation fear at mine', *West Australian*, 24/8/2000
- 'Radiation reports prompt inspection', *Kalgoorlie Miner*, 22/8/2000
- 'Aborigines Irate Over Uranium Health Risk', *Kalgoorlie Miner*, 23/8/2000

Videos:

- Glen Cooke – a Ngaanyatjara man who lives in Wiluna – participating in a WA anti-uranium walk, 2011:
www.youtube.com/watch?feature=player_embedded&v=U5Jli61kFQk
- Glen Cooke's appeal to the EPA: youtube.com/user/BUMPcollective.
- 6-minute [video](#) on the health effects of radiation and elevated radiation levels at Wiluna as a result of uranium exploration in the 1980s:
www.youtube.com/watch?v=M3pxMfsnd8c&feature=player_embedded#!
- Footprints for Peace: Walk Away From Uranium Mining Australia
www.youtube.com/watch?feature=player_embedded&v=QI9CeRC7zAo#!

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MANYINGEE URANIUM DEPOSIT

Manyingee is 80 kms from the town of Onslow on the central west coast of WA. Discovered in 1974, the deposit is located in an old dry bed of the Ashburton River.

This deposit is thought to contain about 8000 tonnes of uranium (7.9Mt @ 0.102%). An in-situ leach mine is proposed. Paladin Resources is currently negotiating exploration rights with Traditional Owners.

Trial mining took place in the 1980s. Anti-uranium activists who visited the mine photographed reported large piles of waste with virtually no protection for the public and wildlife. Technical problems with the pilot plant forced Total Mining Australia to abandon development of the site in 1985. The World Nuclear Organisation puts a [different view](#): "Two pumping tests and one five-spot in situ leaching test have been run to evaluate whether the ore is amenable to in situ leaching and whether the leach solutions can be confined. Subsequent monitoring confirmed that there was no environmental contamination from these tests. Development was suspended due to federal Labor Government policy on uranium. "

NGOs were asking in 1986 where the one and a half tonnes of uranium produced at Manyingee had been sent (probably Ranger) and where the groundwater monitoring records were to be found (if indeed they were kept at all).

According to investigators at Manyingee in 1986, assay workers for Minatome in 1980/81 had been issued with wire brushes and instructed to erase any Aboriginal paintings in the area.

Update: Paladin looks to save \$US60m

Nick Sas, *The West Australian*, 8 November 2012, <http://au.news.yahoo.com/thewest/business/a/-/wa/15327757/paladin-looks-to-save-us60m/>

As shares in Perth-based Paladin Energy hit seven-year lows yesterday, managing director John Borshoff hit the brakes on its expansion strategy, saying the miner's current uranium sale price would have to almost double before new developments could come online. ... Paladin has two early-stage projects in WA - the Manyingee project, 85km east of Onslow and the Oobagooma project 75km north-east of Derby, and Mr Borshoff flagged a slowing in its exploration programs. He said that the company had enough cash to meet spending requirements on its Valhalla deposit in Queensland, following the Newman Government's decision to lift its uranium mining ban last month, which opened the door for its early-stage Mt Isa project.

More information:

- Paladin www.paladinenergy.com.au/search.aspx?Query=Manyingee
- Historical information:
<http://web.archive.org/web/20060622040712/http://www.sea-us.org.au/isl/manyingee.html>
- http://world-nuclear.org/info/Australia_Mines/pmunes.html

Video:

- Paladin and its uranium operations in Africa
www.youtube.com/watch?feature=player_embedded&v=Cfch3nloLzc

OOBAGOOMA URANIUM DEPOSIT

The Oobagooma uranium deposit is 75 kms north east of Derby in the west Kimberleys, on a military training site – Yampi. Paladin has signed a memorandum of understanding with the WA and federal governments to explore for uranium at the Yampi Sound Training Area. It is unclear from the MOU whether the project will undergo normal state and federal assessment processes.

The Oobagooma deposit contains an estimated 9,000 tonnes of U3O8. The deposit was held owned by Afmeco Mining and Exploration, a subsidiary of Cogema Australia, but was sold to a wholly-owned subsidiary of Paladin Resources in 1998 for A\$0.9 million plus 1% royalty. The inferred resource calculated by AFMEX is 9950 tonnes of uranium oxide at 0.12% U3O8, with cut off of 0.03%, though this does not conform to JORC criteria. In situ leaching appears to be the most likely method of extraction and some pump test work has been done.

Update:

Paladin looks to save \$US60m

Nick Sas, The West Australian, 8 November 2012

<http://au.news.yahoo.com/thewest/business/a/-/wa/15327757/paladin-looks-to-save-us60m/>

As shares in Perth-based Paladin Energy hit seven-year lows yesterday, managing director John Borshoff hit the brakes on its expansion strategy, saying the miner's current uranium sale price would have to almost double before new developments could come online. ... Paladin has two early-stage projects in WA - the Manyingee project, 85km east of Onslow and the Oobagooma project 75km north-east of Derby, and Mr Borshoff flagged a slowing in its exploration programs. He said that the company had enough cash to meet spending requirements on its Valhalla deposit in Queensland, following the Newman Government's decision to lift its uranium mining ban last month, which opened the door for its early-stage Mt Isa project.

More information:

- Paladin www.paladinenergy.com.au/search.aspx?Query=Oobagooma
- Historical information:
<http://web.archive.org/web/20060624103957/http://www.sea-us.org.au/isl/oobagooma.html>
- http://world-nuclear.org/info/Australia_Mines/pmunes.html

YEELIRRIE URANIUM DEPOSIT

The Yeelirrie uranium deposit is located 80 kms south-west of Wiluna in the WA Goldfields on Wongutha country.

The deposit extends over 9 kms, is up to 1.5 kms wide, up to 7 metres thick and with an average depth of about 7 metres of overburden. A historic estimate of the mineral content of Yeelirrie was prepared for BHP Billiton in June 2012 by an international mining consulting firm. The historic estimate indicates that Yeelirrie hosts measured and indicated mineral resources of approximately 139 million pounds (63,000 tonnes) of U₃O₈ with an average grade of approximately 0.13%.

Western Mining Corporation (WMC) discovered the uranium deposit in 1972. In the 1980s, WMC dug a series of trial mines at the Yeelirrie site. This was the first large scale calcrete ore-body found in the world, and thus no exploration techniques were known in order to accurately determine ore reserves. Trial mining involved several pits, extracting a total of more than 130,000 tonnes of ore. The pilot processing plant was in Kalgoorlie, although the tailings were dumped back at the mine site, in several dams. The exact production of uranium is unknown, although given the amount of ore mined, it was probably around 195 tonnes U₃O₈. It was most likely shipped to the Olympic Dam uranium mine in the late 1980s and then sold.

An Environmental Impact Statement was produced in 1978 and resulted in environmental approval from both state and Commonwealth governments. In the 12 years to 1983 WMC and its partners (then including Esso) spent a total of \$35 million preparing to develop Yeelirrie as an open-cut mine, including building and operating the pilot metallurgical plant at Kalgoorlie. A \$320 million project was envisaged and sales contracts were being planned. However, the 1983 federal election and implementation of the ALP 'three mines policy' meant that permission to negotiate sales contracts was withdrawn in March 1983. Plans were then abandoned.

In its 1996 Environment Progress Report, released in July 1997, WMC admitted leaving a contaminated trial uranium mine exposed to the public, with inadequate fencing and warning signs, for more than 10 years. A spokesperson for WMC said a 1995 inspection revealed the problems and also admitted that the company could have known about the problems as early as 1992.

WMC said there was inadequate signage warning against swimming in a dam at the site, which was found to be about 30 times above World Health Organisation radiation safety standards and admitted that people used the dam for "recreational" purposes including swimming, but did not drink the salty water.

WMC said it had "no record of whether uranium ore or contaminated products inside the exposed drums were removed". However, a further 1996 inspection revealed that "uranium ore from the site was also found to have been used to repair nearby roads".

In 2005, BHP Billiton acquired the Yeelirrie deposit. In 2008, with both state and federal governments permitting new uranium mines, BHP Billiton listed Yeelirrie as an "outstanding long-term opportunity". Mine construction beginning in late 2010 was envisaged.

BHP Billiton concluded one stage of exploration mining. A Scoping Document was approved by the WA EPA in early 2010 but BHP Billiton did not prepare an Environmental Review and Management Programme for EPA approval. The World Nuclear Organisation [states](#): "In 2011 the project was wound down and the ERMP was deferred." Staff and senior management from the Yeelirrie project were relocated to other areas of BHP Billiton.

The Wongutha Traditional Owners directed the Central Desert Native Title Service to no longer negotiate or discuss uranium mining with BHP Billiton in an act of opposition and dissent to any plans to mine uranium.

In August 2012, BHP Billiton [sold](#) the deposit to Cameco for US\$430 million subject to approval from the State Government and the Australian Foreign Investment Review Board.

Resource analyst Gavin Wendt [said](#): "When the project was at the forefront of the company's thinking a few years ago when uranium prices were very high, prior to Fukushima, I think BHP was very, very concerned to develop the project. But, in the post-Fukushima world, I think BHP's near term thinking is that they really aren't as keen on uranium as they were four or five years ago."

More information:

- Submission to the EPA on the Scoping study by BHP for Yeelirrie <http://ccwa.org.au/sites/default/files/100222-BHP%20Billiton%20Yeelirrie%20ESD%20submission.doc>
- Wikipedia http://en.wikipedia.org/wiki/Yeelirrie_uranium_project

- Historical information:
<http://web.archive.org/web/20060622155638/http://www.sea-us.org.au/no-way/yeelirrie.html>
- 'WMC Admits Leaving Uranium Mine Exposed', *The Age*, 10/7/97
- 'BHP bosses grilled at AGM in Perth', 16/11/10, *West Australian*,
www.perthnow.com.au/business/news/bhp-bosses-grilled-at-agm-in-perth/story-e6frg2qu-1225954576279
- world-nuclear.org/info/Australia_Mines/pmines.html
- 'Cameco Acquires Yeelirrie Uranium Project in Western Australia', Cameco media release, 26 August 2012,
http://www.cameco.com/media/news_releases/2012/?id=635

Videos:

- BHPeep Show – YouTube clip about BHP legal privileges
www.youtube.com/watch?v=UNu-b-9e1zg&feature=player_embedded
- West Australia Nuclear Free Alliance members speak out against the proposed mine at Yeelirrie and others in the Goldfields
www.youtube.com/watch?feature=player_embedded&v=Wrwg80Qvjp0



Above and below – trial mining at Yeelirrie.



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[LAKE MAITLAND URANIUM DEPOSIT](#)

The Lake Maitland uranium deposit, estimated at around 11,000 tonnes, is located 60 kms from Wiluna in the WA Goldfields.

Mega Uranium's scoping document has been approved by the WA EPA and it is preparing an Environmental Review Management Plan.

There is opposition to this project from the community in Wiluna 30 kms away – the community is concerned about background levels of radiation and water consumption.

Mega Uranium has other uranium interests in WA, including Kintyre Rocks, Kintyre East and Coolbro Creek.

More information:

- Submission on Scoping study of Lake Maitland by Mega uranium
http://ccwa.org.au/sites/default/files/CCWA_ACF_TWS_Lake%20Maitland_U_Mine_Mega.doc
- Lake Maitland www.megauranium.com/properties/australia/lake_maitland/
- Scoping document
www.epa.wa.gov.au/docs/3212_LakeMaitland_ESD_15062.pdf
- world-nuclear.org/info/Australia_Mines/pmines.html#maitland



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[KINTYRE URANIUM DEPOSIT](#)

The Kintyre deposit is located near Jigalong and Punmu, Pilbara – 1200 kms north-east of Perth.





Kintyre area showing Camp Tracy

The deposit was discovered by Rio Tinto Exploration in 1985. From 1985-88, exploration by Rio Tinto identified eight deposits at Kintyre. In 1988 the project was put into care and maintenance due to low uranium prices.

In April 1994 the WA government excised 15,100 hectares from the Karlamilyi (formerly Rudall River) National Park, including the Kintyre project area. In 1996 the uranium outlook led to metallurgical testing of bulk samples, but in 1998 the project was returned to care and maintenance due to low uranium prices, and in 2002 continued low prices led to the dismantling of the camp and some site rehabilitation.

In July 2008, Cameco (70%) and Mitsubishi (30%) bought Kintyre for US\$495 million, conditional upon state government approval for the sale and agreement with the Martu Traditional Owners. An exploration program to confirm ore reserves commenced in 2009, with a feasibility study envisaged to begin by the end of 2010. In 2010 Cameco said that it envisaged starting mine construction in 2013 and operation in 2015. In March 2011 indicated resources were updated to 25,600 tonnes U₃O₈ at 0.49%, and inferred resources of 2400 t at 0.47%.

Cameco has submitted a [Uranium Project Environmental Scoping Document](#) to the WA EPA which has been approved, but is behind schedule with its Environmental Review Management Plan (ERMP). Cameco [states](#) that it hopes to submit a draft ERMP in 2012, and to complete an agreement with Martu Traditional Owners.

In July 2012 Cameco CEO Tim Gitzel [said](#): "With the pounds we have, the economics are where they're at, so we're going to have to see some increase to resources there to make it go forward or reduced costs, though we're not crossing our fingers on

that too much because we see Western Australia being charged for some time with all the big projects going on. ... We're looking at it, but given what we have today ... we need more pounds, more price or both."

According to [Mining News](#), the prefeasibility study found that to break even, the project would need an average realised uranium price of \$US67 per pound or 62 Mlb of production over its life, as opposed to 40 Mlb currently.

Nevertheless Cameco is undertaking further exploration at Kintyre and is reportedly moving to an 18-month feasibility study, but the project is unlikely to start construction in 2013 as previously envisaged and the CEO's comments suggest the project may be deferred indefinitely as it was in 1988 and again in 1998.

Several other uranium mining companies are buying up tenements close to Kintyre in the hope of finding uranium seams of the main Kintyre deposit – including Mega Uranium and Encounter Resources / Barrick Gold.

Update:

Cameco pulls back further at Kintyre

Kristie Batten, 2 November 2012, [miningnews.net](#)

URANIUM giant Cameco now says it will not move to a feasibility study at its Kintyre project in Western Australia as part of an adjustment of its overall growth strategy. While a prefeasibility study earlier this year found the project to be uneconomic in its current form, the company vowed to push ahead with an 18-month FS.

However, the Canadian company said yesterday it would complete the value engineering and the environmental permitting at Kintyre, in order to maintain the ability to proceed with the project. ...

The PFS was based on a seven-year open pit mine to produce about six million pounds of uranium oxide per annum, using the measured and indicated resources of 55Mlb at 0.58% uranium oxide.

The study found that to break even, the project would need an average realised uranium price of \$US67 per pound or 62Mlb of production over its life, as opposed to 40Mlb currently.

Cameco chief executive Tim Gitzel said with uranium spot prices at about \$41/lb yesterday, a number of other producers and developers had already cancelled or deferred projects. ...

Cameco said its strategy to achieve production of 40Mlb per annum by 2018 would now be scaled back to 36Mlbpa by 2018. ...

Meanwhile, its \$430 million purchase of the Yeelirrie project in WA from BHP Billiton was yet to close, with Foreign Investment Review Board approval still pending. ...

More information:

- CCWA submission on the Kintyre Scoping Document
http://ccwa.org.au/sites/default/files/FINAL_Kintyre_Scoping_Submission_CCWA_ACF_TWS_ACF.doc
- Cameco www.cameco.com/exploration/major_projects/australia/kintyre and www.cameco.com/australia/kintyre
- Historical information:
<http://web.archive.org/web/20060620110330/http://www.sea-us.org.au/norway/kintyre.html>
- world-nuclear.org/info/Australia_Mines/pmines.html

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MULGA ROCKS URANIUM DEPOSITS

The Mulga Rocks uranium deposits are located west of Leonora in the WA goldfields on Wongutha country. Mineralisation consists principally of uranium, scandium, nickel and cobalt in lignite within a sedimentary basin.

The deposits were discovered by the Japanese Government-owned corporation, PNC Exploration Australia Pty Ltd, in 1979.

In January 2009 Energy & Minerals Australia (EAMA) announced a JORC-compliant inferred resource of 24,520 tonnes U₃O₈ averaging 0.055% at 200 ppm cut-off grade. The three main Mulga Rock deposits are hosted in lignite, though there is sandstone-hosted mineralisation beneath and near Ambassador.

EAMA won a court battle over ownership of the deposit and plans to accelerate exploration activities.

In 2010 EAMA said it was developing the Mulga Rock deposits. A scoping study was undertaken, centred on the Ambassador deposit, with production envisaged both from open-cut lignite and in-situ leach mining of sandstones beneath.

In July 2012 EAMA [said](#) production was several years away as the company needed to complete studies and receive environmental approvals.

The local community of Coonana have a long experience with the nuclear industry – many migrated to Cundalee and then Coonana from SA during and after the Maralinga nuclear weapons tests in the 1950s.

More information:

- Energy Minerals Australia www.eama.com.au/projects/mulga/
- world-nuclear.org/info/Australia_Mines/pmines.html#mulgarock

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PARKESTON – PROPOSED URANIUM TRANSFER HUB

The West Australian State Government has been holding meetings with the Kalgoorlie Shire Council to plan a transfer station for uranium in Kalgoorlie. Parkeston is a suburb of Kalgoorlie which is only a few hundred metres from the Ninga Mia Aboriginal Community.

All of the four uranium mining proposals currently under assessment in WA appear to rely upon a proposal to establish a transfer facility in Parkeston, which would be built for the purpose of storing, handling and transferring uranium concentrate. Uranium would be transferred from truck to rail en route to ports in South Australia and the Northern Territory.

A uranium transfer facility at Parkeston represents a serious public interest issue, due to the radioactive nature of the material being transported and stored, and the close proximity to permanent housing. The West Australian government has been vocal about keeping uranium away from towns like Geraldton and Kalgoorlie but is ignoring the community at Ninga Mia.

While there has been public acknowledgement of this proposal from the WA Minister for Mines and Petroleum, there is no public documentation indicating who the proponent for the facility is, the status of this facility, or any other details. It appears that the Government is proposing to use 'Royalties for Regions' money to fund the project.



Train through Parkeston – Ninga Mia community only metres away.



View of Ninga Mia – overlooking Parkeston.

Videos:

- YouTube clip about Parkeston:
www.youtube.com/watch?feature=player_embedded&v=Wwq_2KcmaCA
- Short video about WA uranium transport plans
www.youtube.com/watch?feature=player_embedded&v=Wwq_2KcmaCA

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PANGEA – FORMER PROPOSED HIGH-LEVEL NUCLEAR WASTE DUMP

An international consortium – Pangea Resources – planned to establish a high-level nuclear waste dump in Australia from the late 1990s until 2001. Pangea's corporate video was leaked to Friends of the Earth (UK) – until then, Australians had no idea that we were being targeted as the world's nuclear dump.

In 2002, Pangea Resources rebranded itself as ARIUS – the Association for Regional and International Underground Storage – and it is still scheming to build an international high-level nuclear waste dump.

There is strong public opposition to an international nuclear waste dump in Australia. A 1999 survey by Insight Research Australia found that 85% of respondents wanted the federal parliament to pass legislation to ban the import of foreign nuclear waste into Australia.

Professor John Veevers from Macquarie University wrote in the *Australian Geologist* in August 1999: "[T]onnes of enormously dangerous radioactive waste in the northern hemisphere, 20,000 kms from its destined dump in Australia where it must remain intact for at least 10,000 years. These magnitudes – of tonnage, lethality, distance of transport, and time – entail great inherent risk."



Pressure to dump nuclear waste in Australia will persist – over 300,000 tonnes of high-level nuclear waste have been produced in power reactors, increasing by 12,000 to 14,000 tonnes annually, and there is still no repository for high-level nuclear waste anywhere in the world.

The head of the World Nuclear Association, John Ritch, is one of numerous foreign corporate voices calling for Australia to accept the world's high-level nuclear waste.

Liberal/National Coalition Senators refused to support a Senate motion opposing an international nuclear dump in May 2006. On 3 June 2007, the Federal Council of the Liberal Party unanimously endorsed a resolution supporting the establishment of a foreign nuclear waste dump in Australia. Under the Howard Coalition government, the government-led Uranium Industry Framework promoted the idea. The Howard government joined Australia to the US-led Global Nuclear Energy Partnership, a scheme in which 'supplier' nations supply nuclear fuel and take back high-level nuclear waste from 'user' nations which operate reactors.

Politicians / ex-politicians supporting the development of a high-level nuclear waste dump in Australia to take waste from overseas include:

- Former Prime Minister Bob Hawke (Labor).
- In 2005 Martin Ferguson (Labor) responded to Bob Hawke's call for Australia to establish a high-level waste dump by saying: "In scientific terms Bob Hawke is right. Australia internationally could be regarded as a good place to actually bury it deep in the ground."
- Former foreign minister Gareth Evans (Labor).
- Former foreign minister Alexander Downer (Liberal).

Australian groups lobbying for Australia to host an international high-level nuclear waste dump include the Nuclear Fuel Leasing Group. Head of the NFLG, Dr. John White, has been promoting the group's vision of establishing a uranium enrichment plant, a fuel fabrication plant, and an international nuclear waste dump in Australia.

More information on plans to build an international nuclear dump in Australia:

- Friends of the Earth: www.foe.org.au/anti-nuclear/issues/oz/import-waste
- Nuclear Fuel Leasing Group, Submission to Switkowski/UMPNER, August 2006 (PDF):
http://web.archive.org/web/20070830182528/http://www.pmc.gov.au/umpner/submissions/134_sub_umpner.pdf
- J.J. Veevers, Disposal of British RADwaste at home and in antipodean Australia, *Australian Geologist*, www.es.mq.edu.au/geology/media/veevers1.htm
- Association for Regional and International Underground Storage (the successor to Pangea Resources) www.arius-world.org

- 2003 submission and article by Australian academic Ian Holland (PDF) www.foe.org.au/sites/default/files/212%20I%20Holland%20on%20Pangea..pdf
- Charles McCombie, Arius Association, 2006, 'A Cleaner, Safer World – How Can Australia Help?' www.arius-world.org/pages/pdf_2006_7/A-A%20Cleaner%20World-Paydirt%20March%202006.pdf

Video:

- Pangea video (leaked to Friends of the Earth: www.youtube.com/watch?feature=player_embedded&v=UjBSAlu0hjM

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HAROLD E HOLT COMMUNICATIONS STATION **NORTH-WEST CAPE**

Normally known as North West Cape, the base is used for low frequency communications. It was very likely a high-priority [nuclear target](#) during the Cold War.

The Nautilus Institute provides the following [summary](#):

The Naval Communication Station Harold E. Holt is presently made up of three sites some 60 kilometres apart running the length of the narrow peninsula separating the Exmouth Gulf from the Indian Ocean. The original primary purpose of the US Naval Communication Station North West Cape when it opened in 1967 was to enable the US Navy to communicate with submerged submarines (and surface vessels) in the Indian Ocean and western Pacific Ocean. Two important qualities of Very Low Frequency signals is that they follow the curvature of the earth and hence can be received at great distances, and that they can be detected by receivers more than twenty metres underwater.

Transmission of such Very Low Frequency radio signals required more than a million watts of power and the construction of twelve towers more than 300 metres high to support a network of antenna wires for the transmission of these powerful signals. This 400 hectare site, known as Area A, lies at the very tip of the Cape, and for more than two decades was a key link in US Navy communications, with its Polaris and other strategic nuclear missile submarines. Areas B and C hold high frequency transmission and receiving facilities further south on the peninsula, and until 1998, a Defense Satellite Communications System (DSCS) satellite communications ground station.

Polaris submarines were retired from the Pacific in 1982, and were replaced by Ohio-class submarines carrying Trident nuclear ballistic missiles of much greater range, which relied principally on Jim Creek in Washington for VLF communications. But until that point, Naval Communication Station Harold E. Holt would have been a high priority Soviet nuclear target.

Following the signing in May 1963 of the Agreement with the Government of the United States of America Relating to the Establishment of a United States Naval Communications Station in Australia [North West Cape – Exmouth WA], it became clear that the Australian government had no control over or access to the contents of those communications. In March 1974 the Whitlam Labor government subsequently renegotiated the base treaty, leading to the dropping of the 'US' from the name of the facility, and an increased but still for many years insignificant Australian presence. "In the Communications Centre, the only thing the Americans and Australians shared was the coffee pot."

During the 1980s "joint" operation came to have more substance. By 1992, the United States no longer needed direct access to the base and the long-resident Naval Security Group detachment was withdrawn in October of the year, and full command passed to the Royal Australian Navy. In 1999 Australia took over responsibility for the facility, although US involvement and funding continued.

In AUSMIN 2008, as part of the gathering wave of new US military, intelligence and military communications co-operation with Australia, Fitzgibbon and Gates' signing of the Harold E. Holt Treaty, with Fitzgibbon announcing that: "[T]his Treaty is yet another example of the breadth of the Australia–US Alliance. From the mountains of Afghanistan to the depths of the oceans, Australia and the United States are working together across a wide range of Defence activities aimed at maintaining a secure world."

PR language apart, Fitzgibbon was quite right. AUSMIN 2007 saw the announcement of a new 'US strategic and military satellite communications system at the Australian Defence Satellite Communication Station (ADSCS) located at Geraldton in Western Australia'. ACDS at Kojarena, 30 km west of Geraldton, is a major signals interception station operated by the Defence Signals Division, and contributes to the worldwide Echelon system. The new joint Kojarena facility will play a key role in the Pentagon's complex and continuously developing Global Information Grid.

Renewed and heightened US involvement in the Kojarena and North West Cape facilities for space surveillance and global military signals intelligence and communication has followed on from a decade of rapid technical and

organisational developments in the global US signals intelligence interception system of which the Joint Defence Facility Pine Gap is a key part. The result is that Pine Gap, and most likely in turn Kojarena and North West Cape, are increasingly closely tied to US military operations worldwide, but particularly to operations in Iraq and Afghanistan.

The facility first known as U.S. Naval Communication Station North West Cape, is once again to become a joint Australia-United States facility. The details of the space surveillance sensor systems and radars to be installed at North West Cape and elsewhere are vague at this stage, but AUSMIN 2010 brought us a new "Space Situational Awareness Partnership" with every sign of a Chinese target.



Academic Richard Tanter provides [further detail](#) on recent developments:

The Naval Communication Station Harold E. Holt at North West Cape, which was originally a US-only facility, then a joint station and, with the end of the Cold War, an Australian-controlled facility, has returned to a primarily US war-fighting role with a vengeance, by two distinct pathways.

The first leads from US concern to retain naval dominance in the Indian Ocean, Persian Gulf and Southeast Asia. North West Cape's original function was communication with submerged US nuclear missile submarines. Australia took effective control of the station in 1992 and has used the facility to communicate with its own submarines ever since. US submarine-launched ballistic missiles had developed longer ranges some time before, making reliance on missile submarine access to the Indian Ocean less crucial. Until that point, however, Naval Communication Station Harold E. Holt would have been a high priority Soviet nuclear target.

Today the main US concern is communication with US attack submarines.

North West Cape's return to 'joint' status formally began at AUSMIN 2008, with Defence Minister Joel Fitzgibbon and Secretary of Defence Gates signing the Harold E. Holt Treaty. The treaty required Australia to operate a naval communications station, allowed the United States 'all necessary rights of access to and use of the station', and split the costs between the two.

The most important aspect of the emphatic US return to this VLF (very low frequency) communications base, given that it had retained access to three of the four communication channels at the facility (with the RAN having the remaining one) was, as Greens Senator Scott Ludlam put it, that North West Cape continues to facilitate, enable and support nuclear armed submarines, offensive attack weapons platforms, thereby legitimising the retention and deployment of nuclear weapons.

The second and quite new pathway derives from Australia's decision to support the United States' quest for military dominance in space. Through a new Space Situational Awareness (SSA) Partnership signed in 2010, the United States intends to establish a powerful space surveillance sensor in Western Australia, preferably at North West Cape.

This will be part of the US global Space Surveillance Network (SSN), which will have two principal functions. The first, emphasised by the Australian government, is to provide a global public good through detection and location of the large volume of space debris orbiting the earth and threatening to damage the satellites on which our networked society depends. However, the SSN has another and equally, if not more important role, for the US military, which is to use the same capacities to detect objects in space for offensive and defensive aspects of war-fighting in space.

More information:

- Nautilus Institute resources on North West Cape
<http://nautilus.org/publications/books/australian-forces-abroad/defence-facilities/naval-communication-station-harold-e-holt-north-west-cape/>
- Back to the Bases, Richard Tanter, Arena magazine, May 2012,
www.mapw.org.au/download/back-bases-r-tanter-us-forces-australia-may-2012
- Richard Tanter publications: <http://nautilus.org/network/associates/richard-tanter/publications>
- Australian Anti-Bases Coalition: www.anti-bases.org
- Medical Association for Prevention of War, resources on foreign bases in Australia: www.mapw.org.au/australian-issues/foreign-bases

KOJARENA SATELLITE GROUND STATION



Academic Richard Tanter [summarises](#) the Kojarena ground station:

The Australian Defence Satellite Communications Ground Station (ADSCGS) is located at Kojarena, 30 km east of Geraldton in Western Australia. It is operated by the ADF Defence Signals Division (DSD). As of November 2005, the base was staffed by seventy-nine personnel, and housed five radomes and eight satellite antennas. The Kojarena station is a major Australian DSD signals interception facility, and is part of a worldwide system of satellite communications keyword monitoring known as Echelon, which operates within the wider UKUSA signals intelligence system.

Under an agreement initiated in 2007, Geraldton figures in the US–Australia partnership in the Wideband Global SATCOM system, which provides Australian access to the principally US-funded constellation of at least seven (and possibly nine) high-capacity global war-fighting communications satellites. Under the agreement, Australia funded the sixth satellite, due to be launched in 2012–13. The first three satellites were launched between 2007 and 2010, and Australia gained operational access by June 2010.

In November 2007 the Australian government announced the signing of a Memorandum of Understanding with the United States (MUOS) for the building of an additional but separate facility within the grounds of the ADSCGS. This is to consist of three small buildings, three 19 metre antennas,

and two smaller antennas, making up a joint US–Australian ground station for the US Department of Defense Mobile User Objective System, a narrow-band networked satellite constellation for Ultra-High-Frequency satellite communications enabling secure all-weather and all terrain 3-G mobile telecommunications.

The Kojarena MUOS facility will be one of four MUOS ground stations, with the others being located in Niscemi, Sicily, Virginia and Wahiawa, Hawaii.

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