



**AUSTRALIAN
CONSERVATION
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WANFA
WESTERN AUSTRALIAN
NUCLEAR FREE ALLIANCE



**Friends of
the Earth
Australia**



Paul Vogel
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Monday 22nd December 2014

To Paul Vogel,

Re: Mulga Rocks Uranium Proposal – Submission in response to Environmental Scoping Document Assessment Number 1979.

Please accept this submission to the scoping document for the proposed Mulga Rock uranium project made on behalf of the Conservation Council of WA, the Australian Conservation Foundation, Friends of the Earth Australia, the Anti-Nuclear Alliance of WA and the West Australian Nuclear Free Alliance.

Introduction and overview:

Our organisations hold deep concerns over the grave risk to human and environmental health posed by uranium mining and the wider nuclear industry because of unresolved issues of nuclear accidents, weapons proliferation and waste management.

We further hold concerns about the capacity and adequacy of the existing Public Environment Review (PER) process as a mechanism for identifying and addressing both project specific and wider sectoral concerns.

If these concerns are seen as beyond the remit of the current assessment mechanisms then we submit that the current assessment mechanism is deficient for the assessment of uranium mine proposals and call for uranium mine proposals to be assessed by way of a dedicated public inquiry.

We urge the EPA to initiate a dedicated Public Inquiry to examine the cumulative impacts of proposed uranium mines in WA, particularly in the Goldfields region. Along with site and project specific considerations this Public Inquiry should also look at tailings management, transportation and the implications of the whole life cycle of uranium from WA including the production of weapons-usable fissile material and the management of high level radioactive waste.

Concerns re the limitations of the existing Public Environment Review assessment process:

Our organisations have previously made detailed submissions to the Environmental Review Management Plan (ERMP) for Toro Energy's proposed uranium mine at Wiluna as well as the PER for Cameco's proposed uranium mine at Kintyre.

We note that in the case of the Wiluna uranium mine proposal the Federal Environment Minister granted a conditional approval that made 35 specific conditions on areas that were not adequately

covered in the state based ERMP, we further note that the EPA's recommendation to approve the Kintyre project is currently being contested and is under appeal. We maintain that the conditional nature of the federal Wiluna approval demonstrates that the current state process does not meet federal or wider community expectations and fails to provide stakeholder confidence.

We have consistently been disappointed by the lack of detailed evidence, data and methodology or studies provided by the proponents of uranium projects. We have been dissatisfied with the modelling of tailings management facilities and the failure to consider the minimum period with which uranium tailings remain volatile in the environment. We have been frustrated by devolution of powers from the EPA to other agencies that lack both the legislative powers to enforce environmental conditions and the expertise to adequately assess environmental aspects of uranium proposals.

The constraints of the PER model does not include any assessment of the external costs or impacts of the industry. This process has not allowed any consideration of the current safeguards structures for uranium trade – a safeguards system that allowed the ongoing sale of uranium to TEPCO despite significant and ongoing safety breaches by the company, which resulted in Australian uranium directly fuelling the 2011 Fukushima nuclear disaster and being the source of the continuing radioactive fallout.

In the shadow of Fukushima we believe that there can be no nuclear 'business as usual' and there needs to be greatly enhanced scrutiny of Australia's uranium sector. Fukushima was, and continues to be, a human, economic and environmental tragedy. More than 150,000 people remain displaced, large areas have elevated radiation levels and the rehabilitation of the site will require decades of work and billions of dollars.

The United Nations has estimated that the property damage alone will cost Japan hundreds of billions of dollars. As of August 2014, JPY 4.224 trillion (EUR 30.7 billion) had been paid in compensation for damages attributable to the accident. (<http://www.tepco.co.jp/en/comp/index-e.html>)

In October 2011 the Australian Safeguards and Non-Proliferation Office confirmed that Australian uranium sold to the Tokyo Electric Power Corporation (TEPCO), operators of the failed Fukushima plant, was the fuel inside the reactor complex when it melted down:

"We can confirm that Australian obligated nuclear material was at the Fukushima Daiichi site and in each of the reactors...." (Dr Robert Floyd, director-general, Australian Safeguards and Nuclear Safety Organisation, October 2011).

We maintain that the proponent has a direct link, and an ongoing responsibility, to the people of Japan and elsewhere who continue to suffer the consequences of its uranium trade. Further, it is untenable that any new approvals be given for ERA's operations in the absence of a dedicated response to the continuing Fukushima crisis.

In September 2011 the United Nations Secretary General Ban Ki Moon released a system-wide study, *The implications of the accident at the Fukushima Daiichi nuclear power plant*, calling for uranium producing nations to hold a cost-benefit assessment of the environmental and community

impacts of mining. This recommendation has been supported by a recent Australian parliamentary review (Joint Standing Committee on Treaties report on proposed sales to the United Arab Emirates) into plans for new uranium sales, however to date there has been no action taken on this clear request by any Australian government or uranium producer. (Appendix 1)

It is our view that no further uranium mining can or should be approved in the absence of this review.

The limitations of the PER structure and the modular assessment of parts of the PER has led to a non-transparent, confusing and draw out process. We urge the EPA to consider a different approach for the Mulga Rock uranium proposal assessment that includes the provision and assessment of full data and methodology and complete management plans.

Sections not included in the Scoping Document that should be included in the Public Environment Review

Tailings Management:

The most significant of area missing in the scoping document is tailings management. We note that the proponent has outlined their intention to store tailings in the unlined mined out pits. It is unclear if this will be in one pit or in each of the nine proposed pits. We have regularly advocated for the inclusion of complete tailings management plans in PER documents or equivalent as this aspect of uranium mine poses the greatest long term risk to the environment and public health. It is this aspect of uranium mining that is unique and is the cause for much public concern. Given this and the potential that the proponent is planning to have nine separate tailings storage sites at the end of mine life, we urge the EPA to require the proponent to include a full complete tailings management plan in the PER.

We note that uranium tailings represent the highest proportion of the radiation on site and represent the longest management issue. It is at the core of the long term risk to the environment from uranium mining given the high residual rate of original radioactivity in uranium tailings, generally around 80 per cent.

Of relevance, the Senate Select Committee on Uranium Mining and Milling in Australia (May 1997) states tailings management is among the most serious challenges facing uranium miners, and, indeed, the entire nuclear energy industry in the future. It will also continue to be a major preoccupation for regulators and scientists as well.

Tailings are mentioned in a number of sections in the Scoping Document. We expect a dedicated section detailing the management plans of tailings to assist the public in understanding the proposal.

Waste Management:

There is no explicit intention to include waste management in the Public Environment Review. This would include waste rock, waste water, chemical waste, other general waste, tailings and protective clothing which would be classified as low level radioactive waste. We expect that this be evaluated and considered and that comprehensive management plans to facilitate measured consideration

are included in the Public Environment Review.

Transport:

There is no indication that the company intend to review the environmental impacts and risks from the transport of uranium, a radioactive material. This aspect of uranium mining has a significant level of public interest because it involves the movement of uranium past homes, hospitals, communities, farm land and playgrounds. It also puts volunteer emergency services under pressure and raises legitimate issues in relation to combat agency preparedness and emergency response capacity.

We request that the proponent provide detailed risk assessments of transporting radioactive materials based on projections of increased traffic in the region. This modelling should include the impacts of other proposed mines becoming operational.

We note there has been discussion about a transfer station from truck to rail, involving the temporary storage of uranium at Parkeston, north east of Kalgoorlie. This proposal is unacceptable as it is too close to residents at Ninga Mia Aboriginal Community. The State government has already conceded that the transportation of yellow cake through Kalgoorlie is too dangerous (Norman Moore, ABC news, May 21st 2010). If it is too dangerous for Kalgoorlie then it is too dangerous for Ninga Mia a community who already live in poverty and have health issues associated with poor living conditions. Any additional health risk on an already vulnerable community is irresponsible and unacceptable.

There should be some assessment of the distance to Darwin and Port Adelaide from Mulga Rock with some 'per kilometer' risk assessment. It is unacceptable that there is no mention of current truck accidents or train derailments in WA, SA or the NT – something we witnessed in Toro's ERMP for the original Wiluna uranium proposal and Cameco's proposal for the Kintyre mine. Truck accidents and train derailments occur and it is negligent for Energy Minerals Australia to not consider these realities at this stage of project development.

Radiological Environment:

We expect that comprehensive baseline data on the radiological environment, air, water, dust, flora and fauna will be included in the PER. It is important that the PER contains this primary material along with detail on methodology and testing conditions and not merely a distilled summary.

Processing and chemical storage and handling:

The company has indicated that they will use acid leaching. This would increase the amount of acid in the environment and poses a significant risk of generating Acid Metalliferous Drainage (AMD) particularly acids in tailings. There is no clear indication from the Scoping Document that the company will consider the environmental risk of AMD or other potential impacts arising from the processing, transport, storage and handling of processing chemicals. This area needs detailed articulation in the PER document.

Consultation and stakeholder engagement:

We believe the company has failed to adequately engage with the Aboriginal community or research Aboriginal heritage protection.

We urge the EPA to require that EMA conduct new anthropologist studies in the area rather than relying on a study from the 1980's based on just a few interviews from one community and where no additional attempts were made to find family members who were identified to be connected to the area. It is very important that this area receive more considered attention in the PER than has been indicated in the scoping document.

Social Impact:

There is no mention of a Social Impact Management Plan despite this being an aspect of the project with a high level of public interest. The approach embodied in the current scoping document is not consistent with best practise or community expectation.

Any project Social Impact Management Plan should include areas like impact and access to culturally significant sites within the project area, health impacts, the transfer of wealth or perpetuation of poverty, impact of fly in-fly out workers on regional communities, the potential spread of STD's from workers, impact of conflict and community division derived from mining proposals and selective community engagement.

Most importantly the social impact section should consider the health impacts of the proposal and the importance of public information and credible base line radiation studies to deliver transparency and to provide an avenue for communities to measure change and impact in the environment. This would include air and water monitoring in area of the Queen Victoria Springs, Coonana, areas along the transport route and any populations that may be affected by dust pollution from the proposed site.

Greenhouse Gas emissions:

It appears that there is no expectation that there will be an assessment on power consumption and source and greenhouse gases. We request that EMA be asked to submit a per annum analysis of greenhouse gas emissions from the mining processes, milling and transportation. The EPA should advise on the effect of this project on Australia's ability to meet our long-term goals of reducing emissions.

We ask that this further detail be provided in response to the data deficiency identified in this area by the European Commission's technical report *Towards a Sustainable Front-End of Nuclear Energy Systems* (2009) which identifies the CO2 intensity of uranium mining and processing as 'a significant contributor to the GHG- emissions of nuclear energy systems' and calls for 'a comprehensive assessment of the full life cycle energy costs of uranium mining, milling and subsequent decommissioning and remediation of the related infrastructure'. (Appendix 2)

This information must be balanced with other sustainability concerns (changes to the water systems, ecosystems and social/economic concerns) in deciding whether this project is in the best interest of West Australia and West Australians or not. The importance of this consideration is increased by the intention of the company to use diesel generators. We urge the EPA to require the proponent to explore other non-carbon intensive forms of energy generation including solar and wind.

This view is also strongly supported in the JRC Scientific and Technical Report, *Towards a Sustainable Front-End of Nuclear Energy Systems*, which states:

'In order to reduce the CO2-intensity of uranium mining and milling, which is a significant contributor to the GHG emissions of nuclear energy systems, one could explore the increased use of renewables in this sector. The location of the sites at often remote locations would facilitate the use of low density energy conversion systems such as solar radiation capturing systems. One could imagine that in countries such as Niger or Australia solar systems would have a considerable potential to power the mining and milling plants' (p 22, 23).

Sections included in the Scoping Document that need additional requirements:

Mine closure:

We note that in other PER documents relating to uranium mining that have been reviewed by the CCWA and other parties there has been an alarming lack of consideration for future weather events and the integrity of post mine closure land forms. Consideration must be given to the changes in the climate and weather events and this detail should be presented clearly and with details of mitigating strategies for 10,000 years.

All modelling for closure must look at isolation of tailings from the environment for a time period of no less than 10,000 years – the standard at the Ranger uranium mine in Kakadu (NT) and a standard adopted by the WA Legislative Council in May 2012. (We note that the operator of that mine Energy Resources of Australia is failing to meet this requirement to isolate the tailings from the environment during the operation of the mine, a situation that highlights the importance of stronger conditions and monitoring.)

We urge the EPA to require studies and modelling, with consideration of future 10,000 year weather events, on how tailings will effectively be isolated from the environment.

We have been disappointed in the past that the full mine closure plans have not been released during ERMP or now PER processes. We have the expectation that the public should be able to make comment on this aspect of the proposal as a matter of significant public interest that poses a public health and economic risk.

One way to address the lack of consideration to this issue in PERs could be to either include the final Mine Closure Plan in the PER or legislate for an additional public comment period through the Department of Mines and Petroleum before any approval of the Mine Closure Plan. In the case of final mine closure plans being assessed by DMP there must be legislative powers for the DMP to require public review and comment and DMP powers to enforce environmental regulations.

We expect the ecological function of the total impact area be reconstructed post closure. To do this there needs to be high quality data on the ecology of the site. This requires public studies in hydro period geochemistry and collection of stygofauna and macro invertebrate data at a number of locations at the proposed mine site in order to provide increased confidence that the ecosystems environmental and cultural values will be restored.

We also expect that there be consultation and engagement with the communities and traditional

owners in the area about an agreed post mine closure land use. We note that this is a key objective of the EPA and the DMP towards better mine closure outcomes.

At this stage of the mining application process we urge the EPA to consider the history of Australian uranium mining that has seen a persistent pattern of cost shifting from mining companies to the State and the tax payer post closure.

The following legacy mines and facilities all still require government intervention and monitoring: Mary Kathleen, Port Pirie, Radium Hill, Hunters Hill, Mt Painter, Rum Jungle, Nabarlek and the former South Alligator Valley mines. We note that WA has approximately 15,000 abandoned mines many of which also require Government intervention. The burden and costs associated with uranium mining are vastly different to other mines, this is not reflected in legislation and is cause for great concern in the ability of agencies and legislation to protect the environment and the tax payer from incurring costs in the case of premature closure.

This is particularly concerning with EMA which is a small company with no other operating mines. If the uranium price drops after production begins, a likely scenario, the company will be in a vulnerable position and could quite easily dissolve. As it stands there are insufficient funds in the Mining Rehabilitation Fund to accommodate the rehabilitation of 9 uranium mine pits and tailings dams. The premature closure of one uranium mine has the potential to compromise the MRF.

We maintain that uranium mining has failed to deliver on environmental protection and failed to deliver any overall economic or social benefit. During the PER process the proponent should address this area in any project justification or any cost-benefit analysis which should consider all external and non-financial costs. Such a project specific cost-benefit analysis could form part of a measured response to the UN Secretary-General's clear 2011 call for uranium producing nations to hold a cost-benefit assessment of the environmental and community impacts of mining. (Appendix 1)

Human Health:

EMA has put human health, communities and workers, dust, gamma radiation and radon gas emissions into one category in the scoping document. We expect that there are very distinct studies and data collection for community health, workers health, dust management, gamma radiation and radon gas emissions as they all require unique consideration and specific attention.

We expect that serious consideration be given to - and evidence based management plans be developed around - bush foods and public health and radiological uptake in the food chain.

We expect that that data collected be provided in the Public Environment Review with details on the methodology and conditions during data collection in addition to any summary or comments about the data.

The International Agency for Research on Cancer (IARC) has publicly stated that 'radon gas deliver's twice the absorbed dose to humans as originally thought'. Nuclear practitioners and expert bodies including the Medical Association for the Prevention of War have indicated that previous dose estimates to miners need to be approximately doubled to better reflect the lung cancer hazard. (Appendix 3)

The risk of uranium mining for workers remains an ongoing concern. It is concerning that companies are trying to develop uranium mines very quickly given WA's history of poor compliance of safety regulations and high injury and fatality rates at mine sites. There is no room for poor compliance or capacity constraints on regulators when it comes to workers exposure to radon gas and radon progeny - polonium, radium and other radioactive particulates. For more information on compliance at Olympic Dam uranium mine and risks to workers safety in uranium mining see appendix 4 for an excerpt about miners and radiation from a paper titled Nuclear Power and Public Health.

Flora and Vegetation:

We expect that studies will identify how the proposed clearing of 2,000 ha of native vegetation will impact on bio-diversity and the ecological integrity of the area. We expect that the baseline data itself and not just a description or summary of, will be presented in the PER complete with methodology and details of testing conditions.

Fauna:

We expect that the primary baseline data will be presented in the PER complete with methodology and details of testing conditions along with any description or summary of the findings.

We expect that complete studies of ecologically significant and non-significant fauna on and surrounding the project area will be included in the PER. We expect that the fauna studies done inside the project area should be replicated in the surrounding areas – including between the project area and the Queen Victoria Springs Nature Reserve.

Further studies should be done, and made publicly available, into the radionuclide uptake in fauna with particular attention to fauna that is hunted for food in the area. We expect that the company would pursue a study on the migration of animals that are typically hunted for food, the potential radiological uptake in those animals and any risks to public health.

Hydrological Process:

We expect that this will include baseline studies of the surface water and ground water and a review of the environmental needs of those water sources, recharge rates and existing radiological studies of water sources.

We expect the proponent to identify all the aquifers in the region that they intend to use and conduct ecological studies on the surrounding groundwater dependent ecosystems of those aquifers to identify the water required to maintain the ecological function of those areas.

We expect and strongly urge the EPA to require the company to present the data from such studies in the PER, along with complete methodology and conditions during testing. We expect that the PER will include details on the impacts of dewatering and reinjection of water on the quality and quantity of groundwater.

Global Implications of uranium export from Mulga Rock:

We note the limitations of the PER process and scope and the significant environment, social and geopolitical issues the PER avoids that hold significant public interest. We urge the EPA to require

inclusion of global implications of uranium exports into the PER document. In the absence of this we again call on the EPA to hold an independent public inquiry so significant aspects such as safeguards or weapons proliferation may be included in the assessment. We also urge the analysis of nuclear waste storage arrangements internationally; we note a recent accident at the world's only deep geological repository for nuclear waste. The New Mexico Waste Isolation Pilot Plan (WIPP) storing high level radioactive waste from the US nuclear weapons project had an explosion in February 2013 affecting 3,000 feet of tunnels and giving low level dose of internal radiation to 22 workers. (Appendix 5) There is still no permanent or successful long term storage of radioactive waste globally without which it is irresponsible to continue to produce waste the inevitable outcome from uranium mining. We must have an avenue to assess our involvement in the generation of radioactive waste and our responsibilities.

An analysis of the broader global implications of uranium exports from Mulga Rock should include a total life cycle analysis with consideration of the proliferation of Weapons of Mass Destruction (WMD) and the production and management of long lived high level radioactive wastes. It is irresponsible for uranium producers such as EMA to attempt to disassociate their projects from the inevitable risks and insecurities of the wider nuclear sector, including the generation of weapons usable fissile material and high-level radioactive waste.

This is an increasing concern given recent moves by the Australian Government to sell uranium to India, a non-signatory to the Non Proliferation Treaty that is currently engaged in a nuclear arms race with Pakistan and has a poor record with both nuclear safety and silencing public protest.

While many countries are discontinuing and slowing down nuclear energy fledgling companies like EMA are looking to sell to new countries where there may be growth.

To move into these markets our Government is ignoring serious safety risks and proliferation risks.

The impact of any future uranium sales from Mulga Rock should and must involve consideration of these broader implications, including;

- safety breaches at operating reactors that make reactors vulnerable to terrorist attacks, extreme weather events and ultimately a Fukushima or Chernobyl scale meltdown
- storage and management issues associated with high level long-lived radioactive waste
- the legal and illegal diversion of spent nuclear fuel and fissile material for the proliferation of Weapons of Mass Destruction (WMD)

Conclusion:

This submission has identified specific and significant information gaps and deficiencies which need to be addressed in any future assessment of the Mulga Rock project. It has also further identified a series of wider or downstream implications and impacts that require further exploration in relation to this proposal.

If these concerns are seen as beyond the remit of the current assessment mechanisms then we

submit that the current assessment mechanism is deficient for the assessment of uranium mine proposals and call for uranium mine proposals to be assessed by way of a dedicated public inquiry.

We urge the EPA to initiate a dedicated Public Inquiry to examine the cumulative impacts of proposed uranium mines in WA, particularly in the Goldfields region. Along site and project specific considerations this Public Inquiry should also look at tailings management, transportation and the implications of the whole life cycle of uranium from WA including the production of weapons-usable fissile material and the management of high level radioactive waste.

For further information on any issues raised in this submission please contact:

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Yours sincerely,

Piers Verstegen, Director, Conservation Council WA



Dave Sweeney, Australian Conservation Foundation



Kado Muir, Chairperson, West Australia Nuclear Free Alliance



Marcus, Co-Chair, Anti-Nuclear Alliance of WA



Jim Green, Friends of the Earth Australia



Appendix

- 1** UN system wide study nuclear post Fukushima
- 2** European Commission report Towards a Sustainable Front-End of Nuclear Energy Systems
- 3** International Agency for Research on Cancer - Report
- 4** Peter Karamoskos – Olympic Dam Uranium mine workers
- 5** New Mexico WIPP - accident