



Appeals Convenor
Environmental Protection Act 1986

**REPORT TO THE
MINISTER FOR ENVIRONMENT**

**APPEALS IN OBJECTION TO THE REPORT AND RECOMMENDATIONS OF THE
ENVIRONMENTAL PROTECTION AUTHORITY (REPORT 1522)**

KINTYRE URANIUM MINE AND ACCESS ROAD

PROPONENT: CAMECO AUSTRALIA PTY LTD

Appeal numbers 136 to 152 of 2014

December 2014

Appeal summary

This report addresses 16 appeals lodged in objection to the content of, and recommendations in, the report of the Environmental Protection Authority (EPA) in relation to a proposal by Cameco Australia Pty Ltd (proponent) to develop and operate the Kintyre Uranium Mine and Access Road in the Shire of East Pilbara.

Appellants raised a number of concerns in respect to the proposal's impacts and the EPA assessment process, including mine closure and rehabilitation; human health; ground and surface water; terrestrial fauna; and the adequacy of consultation.

The Appeals Convenor's investigation of these issues included undertaking a site visit and providing appellants with an opportunity to discuss their appeals. Discussions were also held with the Office of the EPA, Department of Environment Regulation (DER) and the Department of Parks and Wildlife.

Recommendation

Having regard to the information presented in the appeals, the Appeals Convenor considered that the EPA's assessment of the proposal was appropriate.

It is recommended however that appeals be partly allowed to the extent that the Minister:

- seeks guidance from relevant decision making authorities that a condition reflecting the intent of the Legislative Council motion in respect to the tailings management facility (TMF), and consistent with the closure plan applying to the Olympic Dam proposal, will be applied in this case;
- gives consideration to including a condition in any approval of the proposal requiring the proponent to undertake monitoring of radiation dose rates to relevant bush tucker species in the vicinity of the mine, such that the dose rates to humans predicted through the ERMP can be verified;
- seeks confirmation from relevant agencies that legally enforceable conditions can be applied to the proposal to:
 - ensure baseline and ongoing monitoring of radiation levels at sites of public use close to the mine site;
 - address risks associated with dust storms impacting on areas of public use close to the mine site;
 - ensure the liner system of the TMF meets best practice requirements in terms of leachate recovery and permeability; and
 - ensure the specifications and standards required for flood protection works can be applied to prevent unacceptable impacts to inland water quality;
- amend condition 6-3 to articulate that the management plan should include measures to refine the disturbance footprint and relocate infrastructure in order to achieve the objective in condition 6-2;
- consults with relevant decision making authorities to clarify whether condition 6-3(1) should be amended to require the pre-clearing survey to include any species of conservation significance; and
- delete "that may have moved into" in condition 6-3(1) and replace with "within".

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INTRODUCTION

This is the Appeals Convenor's report to the Minister for Environment under section 109 of the *Environmental Protection Act 1986* (the EP Act) in relation to 16 appeals lodged in objection to the content of, and recommendations in, Report 1522¹ of the Environmental Protection Authority (EPA) for the Kintyre Uranium Proposal in the Pilbara. The names of appellants are shown in Appendix 1.

The proposal the subject of the appeals is the development of a uranium mine and associated infrastructure at Kintyre, approximately 260 kilometres east northeast of Newman in the Pilbara. The proposal site is north of Karlamilyi (formerly Rudall River) National Park. The location of the proposal and transport route is shown in Figure 1, with the conceptual site layout in Figure 2.

Figure 1 – Location of proposal and transport route

(Source: Cameco)



¹ Environmental Protection Authority (2014) *Report and recommendations of the Environmental Protection Authority: Kintyre Uranium Project – Cameco Australia Pty Ltd*. Report 1522, 28 July 2014. Government of Western Australia.

Figure 2 – Isometric view of conceptual proposal layout

(Source: Cameco)



Appellants sought for the Minister for Environment to remit the proposal to the EPA for further assessment through a public inquiry. Some appellants also sought for the Minister to require implementation conditions to be amended to address concerns raised in the appeals.

In accordance with section 106 of the EP Act, a report was obtained from the EPA in relation to the matters raised in the appeals. The proponent also provided advice on the appeals. During the appeals investigation, the Office of the Appeals Convenor provided an opportunity for appellants to discuss their appeals in further detail, and a site visit was conducted with the a representative of the proponent. Advice was also sought from the Western Desert Lands Aboriginal Corporation (WDLAC) in relation to native title issues raised by a number of the appeals. Officer-level discussions were also held with representatives of the Office of the EPA, Department of Environment Regulation (DER) and Department of Parks and Wildlife (Parks and Wildlife).

There are a number of related proposals and appeals in relation to mining projects within the Kintyre area. These are outlined in Appendix 2.

The proposal also requires approval by the Commonwealth under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

GROUNDINGS OF APPEAL

A range of issues were raised in the appeals, which are summarised as relating to the following subject areas:

1. Rehabilitation and closure
2. Human health
3. Ground and surface water quality
4. Hydrological processes
5. Terrestrial fauna
6. Consultation
7. Past behaviour of the proponent
8. Process issues

Other matters not relevant to the EPA's report are noted after the consideration of the appeal grounds.

GROUND 1 – REHABILITATION AND CLOSURE

A key concern raised by most appellants related to the long term management of radiation risks from the site after mine closure. Many appellants expressed the view that the nature of uranium mining means it is impossible to ensure that radioactive material will not be released into the environment post-closure.

Specific concerns were raised about the risks of radiation contamination from the tailing management facility (TMF). For example, Hon Robin Chapple stated:

Cameco has not provided a commitment that the tailings will be physically, chemically, biologically and radiologically isolated from the environment for no less than 10,000 years and demonstrate that this will be the case, based on extensive field, laboratory and modelling studies (and demonstrate an ability to finance such an endeavour). The modelling for managing tailings is inadequate and poses a risk to the environment post mine closure – for which there is no comprehensive plan.

In this regard the EPA has failed in their [sic] duty to apply the precautionary principle and principles of intergenerational equity. The EPA should, in lieu of assessing the tailings, ensure that strict environmental conditions are in place. This includes the conditions endorsed by the current government, in particular isolating the tailings from the environment for no less than 10,000 years.

A number of appellants referred to a motion passed in the Legislative Council of the Western Australian Parliament on 23 May 2012, supported by government members, which was to the effect that equivalent or better environmental regulatory standards are applied to uranium proposals in Western Australia compared with the Ranger Uranium Mine in the Northern Territory, with the motion specifically referring to 'tailings being physically isolated from the environment for at least 10,000 years'.²

Concern was also raised regarding the deterioration of pit lake water quality over time and the uncertainty regarding the pathways of radionuclides.

One appellant contended that the EPA's assessment failed to adequately assess impacts arising from acid mine drainage, including how this issue was to be managed such that contamination of groundwater does not occur.

A number of appellants considered that the proposal would present an unacceptable liability to the State when the mine is relinquished. Appellants recommended that the proponent be required to pay a bond that reflects the total estimated cost of mine closure.

² *Hansard*, Legislative Council, Parliament of Western Australia, 23 May 2012, p. 2995.

Consideration

Environmental objective

In its assessment of the proposal, the EPA identified 'closure and rehabilitation' as a key environmental factor. The EPA's objective for this factor is:

To ensure that premises are closed, decommissioned and rehabilitated in an ecologically sustainable manner consistent with agreed outcomes and land uses, and without unacceptable liability to the State.³

In its assessment against this objective, the EPA advised that the proponent has completed acceptable assessments, and that suitable procedures are in place to manage the risks of the proposal. The EPA also concluded that the proposal can be implemented to meet its objective for rehabilitation and closure, provided that the Department of Mines and Petroleum (DMP) implements the EPA's advice as part of its regulation of closure under the *Mining Act 1978*.

As noted above, the appeals raised four key concerns in respect to the management of the site post closure: TMF, pit lake, acid mine drainage and performance bond. These issues will be considered in turn.

Tailings management facility

In relation to the long-term risks identified in the appeals in respect to the TMF, the EPA advised:

The EPA Report notes ... that the final integrated waste landform (which includes a TMF) would be assessed through a landform evolution model as has occurred at the Ranger uranium mine. The use of landform evolution models for closure as used by the Supervising Scientist of the Commonwealth Department of the Environment is considered to be best practice for uranium mines. The Supervising Scientist is a world leader for assessing the assessment of tailings storage facilities and landforms on uranium mines and has developed a number of approaches to assess the impact of extreme events on uranium mining landforms ...

The EPA Report also notes ... that the landform evolution model would be developed to assess the trajectory of the landform on advice from the Supervising Scientist. Assessing the trajectory of the landform will determine if processes such as erosion would occur that have the potential to expose the tailings over a long-term timescale. A landform evolution model was not applied to the Wiluna Uranium Project but has been recommended for this project to ensure that the assessment is aligned with best practice approaches.

The EPA advises the Department of Mines and Petroleum (DMP) ... that the proponent has committed to design the mine site with the use of a landform evolution model. The EPA also advises ... that the proponent needs to update the landform evolution model during operations as part of mine closure planning and make mine closure plans publicly available so the public is aware of the rigor undertaken for closure planning at the Kintyre Uranium mine. The same approach of updating information in mine closure plans has been used successfully at the Ranger uranium mine. The EPA has received confirmation from the DMP that they are negotiating a Memorandum of Understanding with the Supervising Scientist which is anticipated to be completed in the next six months.⁴

In its response to the appeals, the proponent advised that it 'will be required to produce a more detailed Tailings Management Plan for submission to, and approval by, the DMP prior to construction.'⁵

³ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 9.

⁴ *Response to appeals*, EPA, 19 September 2014, pp. 2-3.

⁵ *Response to appeals*, Cameco, September 2014, p. 9.

A key focus of concern of appellants in relation to post-closure management of the TMF relates to the apparent failure to assess the TMF over a minimum 10,000 year time frame, and the risks associated with seepage or leakage from the TMF into groundwater. In discussions with appellants, it was contended that uranium mining should be treated as a 'special case' given the inherent risks, and anything less than the application of world's best practice should not be contemplated.

The Legislative Council of the Western Australian Parliament passed a motion on 23 May 2012 in the following terms:

That this house recommends, should the government proceed with its intention to license uranium mining in Western Australia, the government adopt equivalent or better environmental management regulatory requirements for any future uranium mine in Western Australia as exists under commonwealth and Northern Territory legislation for the operation of the Ranger uranium mine in the Northern Territory with regard to the disposal of radioactive tailings, including the requirements that –

- (a) the tailings are physically isolated from the environment for at least 10000 years; and
- (b) any contaminants arising from the tailings do not result in any detrimental environmental impacts for at least 10000 years.⁶

The proponent assessed the final landform for a period of 1,000 years. Officer-level advice from the Office of the EPA during the appeal investigation was that modelling to 10,000 years would be unlikely to raise additional issues compared with the 1,000 year modelling undertaken by the proponent, and as such, this longer term modelling was not requested by the EPA. The proponent expressed a similar view.

The EPA has also advised that the final landform design will be the subject of further refinement prior to decommissioning, and that the EPA expects the DMP to liaise with the Commonwealth Supervising Scientist in respect to final design as part of mine closure requirements. This reflects the view of the EPA that the DMP can appropriately manage mine closure and rehabilitation to meet the EPA's objectives.⁷

The proposal will also require Commonwealth approval under the EPBC Act, if it is to be implemented. In this regard, it is noted that the approval for the Olympic Dam proposal in South Australia includes a condition requiring the proponent to prepare a closure plan which, among other things, must:

- a. include a set of environmental outcomes that will be achieved indefinitely post mine closure ... [and]
- c. contain a comprehensive safety assessment to determine the long-term (from closure to in the order of 10,000 years) risk to the public and the environment from the tailings storage facility and rock storage facility.⁸

In officer level discussions with the Office of the EPA, it was indicated that similar conditions are anticipated to be applied to this proposal.

The motion passed by the Legislative Council was supported by Government members. While the EPA considered the TMF over a 1,000 year timeframe, for consistency with the conditions applying to Olympic Dam and the Legislative Council motion, it is considered appropriate for the closure of the Kintyre mine to be subject to equivalent standards, consistent with the motion. It is recommended therefore that, in any consultation undertaken under section 45(1) of the EP Act, the Minister seeks guidance from relevant decision making authorities that a condition reflecting the intent of the Legislative Council motion, and consistent with the closure plan applying to the Olympic Dam proposal, will be applied in this case.

⁶ *Hansard*, Legislative Council, Parliament of Western Australia, 23 May 2012, pp 2995-2013.

⁷ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 17.

⁸ *Approval: Expansion of the Olympic Dam copper, uranium, gold and silver mine*, Minister for the Environment (Cwth), 10 October 2011, p. 8.

Pit lake

In relation to the pit lake that will form in the mine void post-closure, some appellants contended that radiological pathways from the pit lake have not been adequately explained. For example, Hon Robin Chapple stated:

Cameco intend [sic] to leave behind a permanent hypersaline lake, whereby the levels of uranium in the pit will increase over the first 10 years post closure. Cameco have [sic] not described in detail the radiological pathway of where the uranium concentrations will come from nor have they [sic] explained why the levels will increase over the first 10 years post closure and not after. The proponent plans to relinquish the Kintyre site 20-30 years post mining which is an indication that Cameco intends to leave the community with a contaminated site as defined under the *Contaminated Sites Act 2003* (WA). This is not best practice or consistent with the Mine Closure Guidelines adopted by both the EPA and DMP.⁹

Concerns were also raised about water contamination associated with overtopping of the pit lake in flood events. This issue is considered below under Ground 3 of the appeal (ground and surface water quality).

In relation to the pit void that is proposed to be left after mining, the proponent's Environmental Review and Management Programme (ERMP) noted that:

The lakes that form in open pit voids upon completion of mining can have a significant impact on the environment and are often the most challenging aspects of mine closure.¹⁰

In its advice on this issue, the EPA said:

The likelihood of water flowing out of the pit lake, or a receptor (e.g. bird or animal) being impacted by the pit lake was assessed in detail by the EPA ... The EPA required the proponent to undertake assessments on: pit lake water quality; potential water flows out of the lake, including via density driven plumes; water quality impacts on fauna; and the possibility of radionuclides transferring from the lake to the surrounding environment. The EPA has noted from analysis of the work undertaken by the proponent that pit lake water will deteriorate, as would be expected for a pit lake in an arid zone, but that significant impacts to receptors that could access the water (e.g. birds) are unlikely (page 15).

The EPA has taken a precautionary approach to the pit lake assessment by advising the DMP to ensure that the proponent's commitments to update the pit lake models, continue geochemical testing of waste rocks and update the ecological assessment of the pit lake occur ... during operations as part of their mine closure planning. The EPA has advised the DMP that the recommendations from the review of pit void lake impacts to fauna, should be implemented ... As with the landform evolution model, the EPA has advised the DMP to make mine closure plans publically available so that the public can be aware of the rigor involved with the assessment of the pit lake prior to closure.¹¹

In its response to this element of the appeals, the proponent advised:

Fate and transport modelling was completed utilising particle tracking to determine the path of the water flow from monitoring bores that have uranium concentrations above 0.1 mg/L based on water quality data collected by Cameco and its predecessors from 1987 to 2012. Particle tracking was simulated during life of mine and 10,000 years post closure. Results confirm that the groundwater depression created by the open pit will act as a terminal sink. As such there is not predicted to be any flow into the aquifer from the pit, and therefore no potential for the pit lake to contaminate the aquifer (Figure 8-8).

⁹ Appeal by Hon R Chapple MLC, 7 August 2014, pp. 1-2.

¹⁰ *Kintyre Uranium Project ERMP*, November 2013, para 8.4.5.3.

¹¹ *Response to appeals*, EPA, 19 September 2014, pp. 2-3.

On closure the final pit will be made inaccessible, so there is not expected to be any radiation exposure due to direct contact with the pit lake water.

Cameco has also conducted a study on the impact of the pit lake water on fauna. The study concluded there was minimal risk to wildlife.¹²

In the EPA's assessment, the pit lake will become a terminal sink, and is expected to maintain a certain level based on groundwater inflow, rainfall and evaporation rates over time. As such, the EPA considered the pit lake would not overflow, and nor would it seep into groundwater based on the information provided by the proponent. The EPA also considered that given the unpalatable nature of water in the pit lake, it posed little risk to native fauna.

Noting this advice, and the EPA's advice that the DMP will update the mine closure plans relating to the pit lake as further work is undertaken by the proponent, it is considered that the EPA's assessment in relation to the long term management of the pit lake was justified.

Acid mine drainage

By this element of the appeal, one appellant contended that the EPA had failed to properly assess risks associated with acid mine drainage at the proposal site.

In response to this issue, the EPA advised:

The EPA Report notes ... that waste rocks on the site would not be acid forming and there is extensive carbonate in the geology of the site. The EPA Report also notes ... that the proponent has committed to continue geochemical investigations on the site in accordance with the National Guidelines for acid and metalliferous drainage. This is a precautionary approach, given that acid mine drainage is unlikely to occur on the site.

... Nevertheless, the tailings would be neutralised once processed in an engineered system (e.g. agitated tank with lime dosing), as occurs at other uranium mine sites in Australia, including the Ranger uranium mine. As this is a controlled process, lime addition to neutralise the tailings can be reduced or increased according the tailings pH. In addition, the TMF design as outlined above (page 13 of the EPA Report) has a suitable leachate recovery, leak detection and puncture proof liner system.¹³

The proponent provided similar advice to that of the EPA.¹⁴

Given the evidence submitted in the appeals indicates that acid mine drainage is not expected to occur due to the geology of the site, and noting the other management measures proposed in respect to the TMF, it is considered that the EPA appropriately assessed this aspect of the proposal.

Performance bond

Appellants contended that the proposal should be the subject of a bond that reflects the total estimated cost of mine closure, and that the value of the bond be reviewed annually and adjusted to ensure sufficient funds are available in the event of an unplanned closure.

In its response to this issue, the EPA advised that the requirement for a bond would be subject to the DMP assessment of the project against relevant Mining Rehabilitation Fund (MRF) criteria.

¹² *Response to appeals*, Cameco, September 2014, p. 10.

¹³ *Response to appeals*, EPA, 19 September 2014, p. 6.

¹⁴ *Response to appeals*, Cameco, September 2014, p. 10.

The proponent advised:

Under the *Mining Act 1978* Cameco is required to pay an annual levy to the Mining Rehabilitation Fund. This has replaced the previous bond system implemented by the DMP.

Cameco has factored the costs of rehabilitation and closure of the site to meet the proposed closure objectives and provisional completion criteria into the costs of developing the Project. Cost estimations have also included the scenario of unplanned closure.¹⁵

The MRF is managed by the DMP and became compulsory in respect to tenement holders under the *Mining Act 1978* from 1 July 2014.¹⁶ All applicable tenement holders will be required to report disturbance data and contribute annually to the Fund. Money in the MRF will be available to fund rehabilitation of abandoned mines in the State. Interest earned on Fund contributions will be able to be spent on the rehabilitation of legacy abandoned mines.¹⁷

An underlying policy objective for the establishment of the MRF is:

Prior to the commencement of the Mining Rehabilitation Fund (MRF), *Mining Act 1978* tenement holders were required to provide bonds as security to ensure that fulfilled their environmental obligations. The bonds system did not cover the true cost of rehabilitating abandoned mines, and increasing bonds to cover the full rehabilitation costs would impose a significant financial impact upon the mining industry.

Bonds discourage investment by tying up significant funds that could be used for developing a mining project and also have to be applied to the specific mine for which the security is held, therefore they cannot be used to address the problem of legacy abandoned mines.¹⁸

The Fund is therefore intended to replace the application of bonds, except in cases of 'high risk'. What constitutes 'high risk' is a discretionary matter, and on information available from the DMP, relates to factors around the liquidity of a tenement holder, or whether the tenement holder has previously met environmental and other requirements related to the tenement. Relevantly, the guidance document published by the DMP specifically excludes the type of commodity or activity as a consideration in determining whether a performance bond will be required.¹⁹

There is provision to apply 'financial assurances' as implementation conditions under Part VA of the EP Act. Unlike the criteria applying to performance bonds for mining tenements, financial assurances can be applied having regard to a range of factors including the degree of risk of pollution or environmental harm associated with the implementation of the proposal.²⁰ Financial assurances are rarely applied – a recent example is an assurance applying to the Wiluna Lead Carbonate Mine, as part of an amended approval authorising to allow transport of lead carbonate through the port of Fremantle. This assurance was applied having regard to the previous pollution events involving the proposal at Esperance Port.²¹

Taking the above into account, a performance bond will not be applied to the proposal by the DMP solely on the basis that the mining involves uranium. As in all cases, it is open to the Minister, subject to the requirements of Part VA of the EP Act, to apply a financial assurance to the proposal. In considering whether such a condition is required, it is noted that the proponent will be subject to paying a levy to the Mining Rehabilitation Fund, based on the criteria of that scheme.

¹⁵ *Response to appeals*, Cameco, September 2014, p. 15.

¹⁶ *Mining Rehabilitation Fund Fact Sheet May 2014 Compulsory Year*, DMP, May 2014, p 1.

¹⁷ <http://www.dmp.wa.gov.au/19344.aspx>

¹⁸ *Mining Rehabilitation Fund Fact Sheet May 2014 Compulsory Year*, DMP, May 2014, p 1.

¹⁹ *The Administration of Mining Securities for Mine Sites Regulated by the Department of Mines and Petroleum*, DMP, May 2014, p. 1.

²⁰ Section 86C(2)(c) of the EP Act.

²¹ Condition 14 in: <http://epa.wa.gov.au/EPADocLib/00783%283%29.pdf>

Recommendation

Having regard to the foregoing, it is recommended that in any consultation undertaken under section 45(1) of the EP Act, the Minister seeks guidance from relevant decision making authorities that a condition reflecting the intent of the Legislative Council motion in respect to the TMF, and consistent with the closure plan applying to the Olympic Dam proposal, will be applied in this case.

It is otherwise recommended this ground of appeal be dismissed.

GROUND 2 – HUMAN HEALTH

Most of the appellants contend that the EPA has not sufficiently assessed the impacts of radiation from the proposal on bush tucker and long-term human health. In respect to bush tucker, the Parnngurr Community submitted that:

The EPA has not properly considered the impacts of the Kintyre Uranium Mine proposal on the communities health from eating bush meat and plants. Cameco have made assumptions about the amount of meat and vegetables that community members eat without proper or meaningful engagement with the community about their diet.

We do not think that the company or the EPA realise how often and how much meat that we eat from free animals.²²

The methodology of the assessment of possible impacts from consumption of bush tucker was also criticised by some appellants. These appellants were specifically concerned that the assessment was based on an assumption that bush tucker comprised beef, which was contended did not reflect the types of animals used by Aboriginal people in the vicinity of the proposal area.

The appellants also contend that the impacts from dust and radon were not properly assessed by the EPA. The appellants consider that climate change will increase the frequency and severity of cyclonic activity causing an increase in wind/dust storms. Some appellants also questioned the failure by the EPA to recommend monitoring conditions for the proposal. For example, A. Hunter's appeal submitted that the proponent has 'provided no evidence of dust monitoring outside the project area, despite the close proximity to Karlamilyi National Park and three communities at Punmu, Parnngurr and Jigalong.'²³ To address these risks, the Conservation Council submitted that:

The EPA, proponent, and other relevant agencies need to take an approach that accurately measures and monitors changes to the radiological environment and offers some peace of mind or evidence to the communities one way or another. This is especially important when it concerns human health and even more so when those communities have not consented to the mine ...²⁴

One appellant contends that the EPA has failed to adequately assess the risk of transporting uranium oxide. The appellant considers that the proponent has not provided an adequate explanation of management actions to be undertaken in the event of an accident.

Many appellants also assert that the EPA's assessment of the proposal should consider whole-of-life use for uranium and the potential impacts to human health. For example, the Footprints for Peace appeal submitted that:

The Kintyre Uranium Mine raises not only local environmental issues, but also much broader issues such as global environmental implications of uranium export.

...

²² Parnngurr Community appeal, 11 August 2014.

²³ A. Hunter appeal, 8 August 2014.

²⁴ Conservation Council appeal, 11 August 2014.

Australia's export of uranium is directly responsible for the radioactive contamination that is still going on in Japan [Fukushima]. It is unacceptable that the [EPA] will not give any consideration to the ongoing effects that this mine may have on the larger environment.²⁵

One appellant submitted that no conditions could be applied to make the proposal environmentally acceptable, and recommended it be rejected, and that the EPA work with the proponent to research options for solar thermal power in Western Australia.

Consideration

Bush tucker

In relation to health risks posed by consuming bush tucker, the EPA provided the following advice in response to the appeals:

The EPA Report ... notes that public exposure from a hypothetical group living next to the mine (1 km away) for 2 months was undertaken, as the nearest community (i.e. Parnngurr) is at least 80 km from the mine site.

The estimated dose to the hypothetical group from all major radiation pathways was 0.013 millisieverts (mSv), which is considerably lower than the background (natural baseline) radiation of 0.3 mSv that this group would receive over the same time period. The contribution to this dose from bush foods was 0.0025 mSv and was a negligible radiation exposure pathway compared to other radiation exposure pathways, such as radon decay products. Bush tucker consumption would need to increase 100 fold to make the dose equivalent to the background dose. The public dose limit is 1 mSv/yr above background.²⁶

The EPA also quoted advice from the Commonwealth Department of the Environment that 'the risk of radiological exposure from bush tucker consumption is low'.²⁷ In its report, the EPA noted advice from the Radiological Council that that bush tucker can be adequately monitored and managed under the radiation management plan.²⁸

The proponent advised that it accepts that bush tucker plays a role in the diet of local Martu people and that hunting and gathering is important for both community and cultural reasons. It provided the following advice in respect to its assessment of risks relating to bush tucker:

Cameco has undertaken modelling using the ERICA framework (the ERICA Tool is a software system that has a structure based upon the tiered approach to assessing the radiological risk to terrestrial, freshwater and marine biota) ... to demonstrate the radiation doses to animals are very low.

In section 8.11.5.4 of the ERMP, using the above data and published data on the relative quantities of bush tucker consumed by indigenous people of the Central Desert area, Cameco conducted an assessment of the potential ingestion dose to a person from the consumption of bush foods affected by the operation. The basis of the assessment was the assumption that the operation had been depositing dust into the environment for 15 years and that the food was consumed at the project boundary. It was also assumed that the bush food would be consumed for 2 months per year. The ERMP at section 8.11.5 notes that Cameco did take into account land use and traditional food gathering as part of the dose assessment.

The calculated estimated ingestion dose from the consumption of bush tucker was 2.5 µSv/y. Note that over the same two month period, it would be expected that the person would receive approximately 300 µSv/y from naturally occurring background radiation.²⁹

²⁵ Footprints for Peace appeal, 7 August 2014.

²⁶ *Response to appeals*, EPA, 19 September 2014, p. 4.

²⁷ *Ibid.*

²⁸ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 19.

²⁹ *Response to appeals*, Cameco, September 2014, p. 8.

During the appeal investigation, the proponent was asked why beef consumption was used as a proxy for bush tucker.³⁰ The proponent advised that this was done as it represented the best available data, given little research was available in respect to native Australian animals.³¹ The proponent stated that applying this methodology, a dose of 2.5 µSv/y would be received, compared to a safety limit of 1,000 µSv/y (i.e. 1 mSv/y). Even if there are differences between the level of uptake of radiation between beef and species consumed as bush tucker, the proponent submitted that there would need to be an order of magnitude difference in uptake to result in any possibility that dose levels would approach the limit is 1 mSv/y. Put another way, the proponent stated that based on the results of the assessment, a person would need to eat 40 tonnes of meat per annum, and 20 tonnes of vegetable matter, to reach the limit of 1 mSv/y. The proponent noted that the natural background radiation is in the order of 2 mSv/y.³²

The proponent also noted that the ERICA methodology used for the radiological risk assessment for plants and animals identified that the most exposed species were lichen and bryophytes, with negligible risks posed to other species.³³

Based on the proponent's representations and the advice of the EPA, it is considered that the methodology for assessing radiation doses for people consuming bush tucker in the vicinity of the proposed mine was acceptable, and that dose rates through this pathway are negligible. It is acknowledged however that the lack of data on radiation uptake by native species creates some uncertainty in the community about the safety of consuming bush tucker. This concern was reflected in advice from WDLAC:

In respect of the apparent shortcomings of the ERICA model to the Australian context and the failure to fully recognise the extent that bush tucker plays in the Martu diet, WDLAC recommends that Cameco consult with Martu communities to determine which key food species could be used for monitoring uptake of radiation. This approach could lead to development of meaningful uptake ratios for use in future ERICA modelling and serve to demonstrate the extent of impact that mining activities at Kintyre is having on the food chain.³⁴

The EPA's report included the following advice in respect to radiation dose rates for conservation significant fauna:

The EPA's view is that the radiation risk to non-human biota would be low, **however due to the uncertainties with data for Australian species, the proponent should verify the risks through monitoring of radiation dose rates** and provide this data as part of the fauna management plan. To ensure this occurs, the EPA recommends a condition for non-human biota on advice from the Supervising Scientist. In the Response to Submissions, the proponent has committed to update the fauna management plan with additional SMART (Specific Measurable Achievable Realistic Timely) criteria at the request of the DotE. These criteria would ensure any impacts to conservation significant fauna are managed and/or mitigated. Therefore, the EPA recommends that the fauna management plan is updated with additional SMART criteria.³⁵ (emphasis added)

³⁰ See *Response to Submissions, Kintyre Uranium Project*, Cameco, 12 June 2014, submission 129.

³¹ Pers comm, Cameco representatives, 22 October 2014.

³² Presentation given to Office of the Appeals Convenor, 22 October 2014.

³³ Ibid, and Table 8-33 of the *Kintyre Uranium Project ERMP*, November 2013, para 8.11.5.4.

³⁴ Advice to the Appeals Convenor, WDLAC, 28 October 2014, pp. 3-4.

³⁵ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 24.

This advice is reflected in recommended condition 7 of the draft implementation conditions.³⁶ Data gathered through this process may assist in informing dose rates to humans from consumption of bush tucker. The recommended condition is, however, directed at data for conservation significant fauna, and not to other species that may be used as bush tucker. Given the lack of data, it is recommended the Minister gives consideration to including a condition in any approval of the proposal that requires the proponent to undertake monitoring of radiation dose rates to relevant bush tucker species in the vicinity of the mine, such that the dose rates to humans predicted through the ERMP can be verified. The species identified for such a study should be chosen in consultation with local Martu communities, including the Parnngurr Community.

Workers and public exposure

In relation to other radiation pathways affecting the health of workers and the community in the vicinity of the proposed mine, the EPA provided the following advice:

... [W]orker exposure is approximately 5 millisieverts per year (mSv/yr) which is similar to other uranium mines in Australia and lower than the regulatory occupational dose limit of 20 mSv/yr. The EPA Report ... notes that public exposure from a hypothetical group living next to the mine (1 km away) for 2 months was undertaken, as the nearest community (i.e. Parnngurr) is at least 80 km from the mine site.

...

The EPA Report notes that both the DMP and the Radiological Council have stated that the radiological assessments are suitable and radiological aspects of the project can be regulated and managed through their requirement of radiation management plans, radiation protection programs (for transport) and radiation waste management plans ...

The proponent undertook air dispersion modelling for the proposal. The modelling indicated that potential impacts from the project would not be discernible from the existing ambient concentrations due to the large distances between the proposal and sensitive receptors (Telfer mine site and accommodation village - 60 km north, and the communities of Parnngurr - 80 km southeast, and Punmu - 113 km northeast).

Appendix 3 of the EPA Report notes that the proponent has committed to developing a best practice dust management plan with the Department of Environment Regulation and has committed to the use of National Environment Protection Measure ambient dust standards in the dust management plan submitted with the Environmental Review Management Programme (ERMP). The EPA was also advised during the assessment process that radiological dust can be regulated by the Radiological Council through the *Radiation Safety Act 1975* and would be subject to the appropriate Radiation Protection Series Guideline ...

The DMP will also be regulating dust under Part 16 of the *Mines Safety and Inspection Regulations 1995* and the management and reporting of dust emissions will be subject to the Naturally Occurring Radioactive Material guidelines ... The dust management plan as part of the radiation management plan will contain provisions to control and monitor radiation exposure from dust during all stages of activity including drilling, mining, processing and waste disposal.

The EPA determined that air quality impacts from dust emissions from the proposal was not considered to be a key environmental factor, and was not evaluated as part of its report.³⁷

In its response to this element of the appeals, the proponent advised that:

To minimise the potential dose and therefore the risk to human health, any organisation that handles radioactive material, including for medical purposes, adopts the ALARA (as low as reasonably achievable) principle. The application of the principle leads to lowering of doses through design, engineering and labour management (time spent working with radioactive material). As a result, the doses received by workers in a uranium mine and mill are low and well below the annual dose limit.

³⁶ Report and recommendations for the Kintyre Uranium Project (Report 1522), EPA, July 2014, Appendix 4.

³⁷ Report and recommendations for the Kintyre Uranium Project (Report 1522), EPA, July 2014, Appendix 3.

In general terms radon gas does not present a health risk in unconfined spaces. The radon emissions at the Kintyre project are unlikely to create abnormal conditions during operation or closure and are unlikely to cause concern for the workforce. Given the nearest community is approximately 100 km away, it would not be possible to measure any increase in radon and certainly not possible to attribute any contribution to the Kintyre operations.³⁸

In relation to the suggestion in appeals that the proponent undertake monitoring of health within communities closest to the proposed mine, the proponent advised:

Cameco's activities will not directly impact Martu communities.

Cameco is not a primary health care provider. The Service delivery of primary health care is delivered by the Department of Health and various Aboriginal Health agencies; however the ILUA [indigenous land use agreement] between Martu and Cameco does include some commitments from Cameco to assist WDLAC [Western Desert Lands Aboriginal Corporation] with some health care initiatives.³⁹

In relation to claims in appeals that the assessment underestimated dust deposition arising from dust storms and cyclonic activity, the proponent advised:

Cameco acknowledges that regional dust storms occur and could increase in frequency as a result of climate change.

However, Cameco does not expect significant dust impacts to occur as a result of the Project due to the Project's size and design focus on dust management.

During operations, dust management techniques for mining and waste rock landforms will include the use of water sprays, dust suppressants and progressive rehabilitation (where practicable). Tailings will be deposited in the TMF as a slurry and have minimal potential for dust generation. On closure the TMF will be capped and has been designed to be effective for at least 1,000 years.

In the event of an extreme weather event such as a dust storm or a cyclone, the amount of dust lift off from mine areas is expected to be small compared with the amount of dust generated from the regional landscape. In addition to this, cyclonic events are often associated with significant rainfall that suppresses dust generation.⁴⁰

From the information presented in respect to this element of the appeals, it is noted that the EPA is of the view that the risks to human health from radiation exposure will be below relevant guidelines and that any risks associated with dust deposition can be adequately managed by other agencies without the need for conditions to be applied under Part IV of the EP Act. Specifically, the EPA was of the view that risks associated with radiological dust can be managed by the DMP and Radiological Council, and other dust particulates can be managed by the DER.

The EPA also noted that the proposal site is a significant distance from the nearest communities, being Telfer (60 km), Parngurr (80 km), and Punmu (113 km). Appellants noted however that the area in the vicinity of the proposed mine is used by members of the public, in particular by members of the Martu community travelling between Punmu and Parngurr. By its appeal, the Parngurr Community expressed particular concern that waterholes in the vicinity of the mine might be contaminated by radiation from the mine.

In its review of regulation of uranium mining in Western Australia, the Uranium Advisory Group recommended:

Rigorous monitoring and public reporting programs should be used to demonstrate both progress towards, and achievement of, agreed environmental outcomes, such that it will be possible to take corrective or enforcement action if the environmental outcomes may not be, or are not being, achieved. Monitoring data should be publicly available.⁴¹

³⁸ *Response to appeals*, Cameco, September 2014, p. 11.

³⁹ *Response to appeals*, Cameco, September 2014, p. 12.

⁴⁰ *Response to appeals*, Cameco, September 2014, p. 4.

⁴¹ *Independent Review of Uranium Mining Regulation*, Uranium Advisory Group, April 2012, Table 1.1.

In this case, the EPA has concluded that risks associated with radiological dust can be effectively managed by other agencies. Reassurance could be provided to the local community if monitoring of the environment in the vicinity of the mine is undertaken during operations such that radiation levels are confirmed as being consistent with the environmental outcomes identified in the ERMP.

Given the foregoing, it is recommended that the Minister, under section 45(1) of the EP Act, consults with relevant decision making authorities on monitoring requirements for radiation outside the proposal area, particularly in respect to areas frequented by members of the public.

In relation to risks associated with dust storms, the Appeals Committee investigating appeals on the Wiluna Uranium Project recommended that the dust management plan include specific reference to risks associated with dust storms.⁴² In that case, the nearest community was approximately 5.2 km from the proposed mine, which is significantly closer than is the case for the Kintyre proposal. Nonetheless, there are places in proximity to the mine which are used by local community members and it is considered there is merit in the relevant management plan including details about risks associated with dust storms in respect to these sites (for example, the hand pump bore north east of the proposal site). This could include baseline and ongoing monitoring of radiation levels at sites outside the mine site that can be used to confirm the proposal achieves the outcomes forecast through modelling. Concerns in respect to contaminating ground and surface water outside the mine site are considered in the next ground of appeal.

Transport

In relation to transportation risks, the EPA provided the following advice in response to the appeals:

The EPA considered transport to be one of the key aspects of the environmental factor of human health. The proponent commissioned the Australian Nuclear Science and Technology Organisation (ANSTO) to undertake a transport risk assessment to assess the risk of various transportation routes (Appendix U of the ERMP). The study noted that the risk from transportation of uranium oxide concentration from the mine to the port in South Australia is low and tolerable.

The EPA provided all local government authorities along the transport route with a copy of the ERMP. No local government authority raised issues with the transport of uranium oxide concentrate. The EPA consulted with the Department of Transport and Main Roads, and the Radiological Council regarding transport. The EPA Report ... notes that the Department of Transport and Main Roads advised that the type of road train proposed did not pose technical problems and that they would be responsible only for advice on the suitability of vehicles. The main agency responsible for transport of uranium oxide concentrate, the Radiological Council, advised that transport could be adequately managed and that information provided within the ERMP is acceptable ...

The proponent confirmed that it undertook a transport risk assessment, and issues around transportation risks are the subject of the Transport Radiation Management Plan.

From the information provided in respect to this element of the appeals, it is considered that the EPA adequately assessed this factor. It is also understood that the transport of radioactive material is subject to legislative controls under the *Radiation Safety (Transport of Radioactive Substances) Regulations 2002*, administered by the Radiological Council.

Whole-of-life radiation impacts

By this element of appeals, some appellants contended that the EPA ought to have assessed down-stream consequences for use of Australian uranium, such as responsibility for nuclear waste, nuclear weapons and contamination following the Fukushima incident.

⁴² Report of the Appeals Committee, Wiluna Uranium Project, September 2012, p. 55.

In response to this issue, the EPA provided the following advice:

The EPA cannot consider whole-of-life use of uranium, which is subject to Commonwealth legislation such as the *Nuclear Non-Proliferation (Safeguards) Act 1987* and Bilateral Co-operative Agreements with export countries. Currently uranium can only be exported through two ports in Australia; Port Adelaide and the Port of Darwin.

The proponent did not respond to this issue.

The object of the EP Act is stated in section 4A of the Act, and is 'to protect the environment of the State'. While broader issues associated with proposals can be taken into account by the Minister under section 45 of the EP Act, it is not considered open for the EPA to take into account environmental matters beyond the jurisdiction of the State. As such, it is recommended this element of the appeal be dismissed.

The appeal submission recommending that the EPA should work with the proponent in relation to researching solar thermal power in Western Australia is also recommended to be dismissed: the proposal is for the development of a uranium mine and associated infrastructure, not for the development of a solar thermal facility.

Recommendation

Having regard to the foregoing, it is recommended that the Minister:

- gives consideration to including a condition in any approval of the proposal requiring the proponent to undertake monitoring of radiation dose rates to relevant bush tucker species in the vicinity of the mine, such that the dose rates to humans predicted through the ERMP can be verified;
- seeks clarification through any consultation under section 45(1) of the EP Act that the following matters will be the subject of regulation:
 - baseline and ongoing monitoring of radiation levels at sites of public use close to the mine site; and
 - risks associated with dust storms impacting on areas of public use close to the mine site.

It is otherwise recommended that this ground of appeal be dismissed.

GROUND 3 – GROUND AND SURFACE WATER

Appellants raised a number of issues relating to possible impacts to ground and surface water associated with the proposal. Key concerns relate to contamination of groundwater from leakage from the TMF and pit lake, both during operations and after closure; contamination of surface water from flood events.

A number of appellants also raised concerns that local communities are worried that previous exploration activities have resulted in contamination of water resources in the area, including at a bore north of the proposed mine site which is used by Martu people.

The Conservation Council also raised concern about the impacts of water abstraction for mining and dewatering associated with the proposal.

Finally, concerns were raised about the adequacy of monitoring of groundwater to provide certainty that the proposal is not adversely impacting on local communities or the environment.

Consideration

Environmental objective

The EPA identified 'inland waters environmental quality' as a key environmental factor for this proposal, with the following objective:

To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected.⁴³

Leakage from TMF and pit lake

In relation to concerns that the proposal will lead to contamination of groundwater, the EPA identified the TMF, pit lake and waste rock dumps as the most likely and highest risk pathways for impacts to groundwater.

In relation to the pit lake, the EPA stated that it:

... required the proponent to undertake assessments on: pit lake water quality; potential water flows out of the lake, including via density driven plumes; water quality impacts on fauna; and the possibility of radionuclides transferring from the lake to the surrounding environment. The EPA has noted from analysis of the work undertaken by the proponent that pit lake water will deteriorate, as would be expected for a pit lake in an arid zone, but that significant impacts to receptors that could access the water (e.g. birds) are unlikely ...

The EPA has taken a precautionary approach to the pit lake assessment by advising the DMP to ensure that the proponent's commitments to update the pit lake models, continue geochemical testing of waste rocks and update the ecological assessment of the pit lake occur ... during operations as part of their [sic] mine closure planning ... [T]he EPA has advised the DMP to make mine closure plans publically available so that the public can be aware of the rigor involved with the assessment of the pit lake prior to closure.⁴⁴

In relation to the TMF, the EPA provided the following advice:

The EPA Report notes ... that the tailings management facility (TMF) will be developed with a leak detection systems and a two layer high density polyethylene leachate recovery system over a puncture resistant 300 mm clay layer ... [T]he EPA also notes that the proponent has suitable baseline groundwater data for radionuclides and will be developing a network of monitoring wells down gradient of the TMF ...[and] that the proponent has committed to capturing further baseline information by monitoring pools and creeks surrounding the site in accordance with the Australian and New Zealand Environment and Conservation Council (ANZECC) water quality guidelines.⁴⁵

The proponent's response to the appeals was in similar terms.

The EPA has not recommended conditions be applied to the proposal for preventing or limiting leakage from the TMF, or to require monitoring to be undertaken to detect leaks. In officer-level discussions with the Office of the EPA, it is understood that the EPA expects such conditions can be applied under legislation administered by DMP and DER. However, the EPA's report provides no advice or directions to DMP in respect to the design standards of the TMF: rather, the advice is directed primarily at post-closure issues (which are considered under Ground 1 of the appeal).

⁴³ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 20.

⁴⁴ *Response to appeals*, EPA, 19 September 2014, p 3.

⁴⁵ *Response to appeals*, EPA, 19 September 2014, p. 6.

In the ERMP, the proponent stated the following in respect to the integrity of the liner system for the TMF:

Based on the review of available data, no measurable degradation of the HDPE materials is expected from chemical or radionuclide parameters. Importantly the management of leachate is only material for the period of operations and the decade or so following closure. Thereafter the tailings will remain effectively dry (given the design functionality of the Closure Cover) and hence a sound post-closure environmental outcome is not dependent on the very long term integrity of the HDPE liners.⁴⁶

Given this, the standard of the liner during the life of the mine and a decade or so after closure is important in reducing risks associated with radiation discharge to groundwater in the vicinity of the mine.

As noted under the previous ground of appeal, the Parngurr Community expressed particular concern that waterholes in the vicinity of the proposed mine may become unsafe to drink, impacting on the Community's traditional use of the area. In its advice to the Appeals Convenor in relation to impacts to water, WDLAC stated:

WDLAC accepts that elevated [radiation] levels in water at communities and in the waterholes may not be related to activities at Kintyre, but understand that some people may believe that they are. Personal perceptions of this nature are often difficult to address, so WDLAC recommends that baseline measurements supported by an ongoing monitoring program might be an appropriate way to address not only adverse perceptions, but also provide Martu and the regulators a level of early detection of impacts or assurance that impacts are not resulting from mining activities.

Should this be deemed an appropriate outcome, WDLAC anticipates that any monitoring programs devised would be developed in consultation with and undertaken with the assistance of Martu traditional owners and that any such programs would be designed in a fashion similar to that used at the Ranger Uranium Mine.⁴⁷

Noting that the EPA identified seepage from the TMF as part of the key environmental factor of inland waters environmental quality, it is recommended the Minister seeks confirmation from relevant agencies through any consultation under section 45(1) of the EP Act that legally enforceable conditions can be applied to the proposal to ensure the liner system of the TMF meets best practice requirements in terms of leachate recovery and permeability.

Risks associated with flood events

In relation to flooding, the ERMP states:

Facilities within the site including the TMF and the Evaporation Pond will be designed to capture surface water runoff in an extreme rainfall event. Specifically the design basis for these facilities will be to retain 400 mm rainfall in 72 hours, plus 1.0 m freeboard for the TMF and 400 mm in 72 hours, plus 0.5 m for the Evaporation Pond.

In the event the capacity of the TMF were exceeded, excess water from the TMF will be pumped to evaporation ponds.

In the event of a more extreme event, additional capacity will be obtained by discharging captured rainfall from these facilities into the open pit.⁴⁸

⁴⁶ *Kintyre Uranium Project ERMP*, November 2013, para 8.12.5.7.

⁴⁷ Advice to the Appeals Convenor, WDLAC, 28 October 2014, p. 5.

⁴⁸ *Kintyre Uranium Project ERMP*, November 2013, para 8.3.5.1.

The EPA's report noted that:

The proponent has committed to zero water discharge from the site, during most conditions (i.e. events less than a probable maximum flood event). The site has been designed to withstand major rainfall events and the most likely area of the site to have potential impacts from flooding will have a flood protection embankment designed for a maximum probable flood event plus 1 metre ...⁴⁹

In its response to the appeals, the EPA stated that it:

... considered long-term impacts on water quality from the proposal. The proponent was required to develop a flood protection bund for a probable maximum flood event plus a one metre contingency ... to ensure no water from the site would disperse into any of the creeks surrounding the site. Flood modelling also indicated that the waters would not enter the Karlamilya National Park. As noted on page 12 of the EPA Report a probable maximum flood bund plus a one metre contingency was required by the Commonwealth Government for the approval of the Wiluna Uranium Project and is best practice for uranium projects. The flow through the creek most likely to flood the mine would need to be nearly 10 times greater than a 1 in 1000 year event to exceed a bund designed for a probable flood event ...⁵⁰

The EPA concluded that, in respect to risks to inland water quality, the proposal can be managed to meet its objectives having regard to (among other things) 'the assessment work and measures that the proponent has committed to regarding zero discharge of water from the site, except during extreme flood events, and its commitment to develop a probable maximum flood event plus 1 m flood protection embankment'.⁵¹

The EPA did not recommend conditions be applied in respect to the TMF or the pit lake. It is understood from officer-level discussions during the appeal investigation that legally binding conditions can be applied in respect to the specifications of the TMF through legislation administered by the DMP and DER, as well as through any approval conditions issued under the EPBC Act. There is also reference in the EPA report to 'the fact that water related issues can be regulated and managed by the Department of Water through the *Rights in Water and Irrigation Act 1914* licencing process'.⁵²

In relation to legally binding conditions being applied to the proposal in respect to the TMF and flood protection works, the officer level advice from the Office of the EPA that this matter can be managed by other agencies is noted. This advice is consistent with the EPA's assessment of the Wiluna Uranium Project (EPA Report 1437), in which the EPA advised that it is:

... satisfied that the TSF [tailings storage facility] can be operated and managed in a safe and secure manner, and can be adequately regulated by the DMP and the Radiological Council.⁵³

It is noted that for the Wiluna Uranium Project, the EPA expressly identified that its objectives for radiation impacts to groundwater would be achieved provided the following matters were regulated under the *Mining Act 1978*, *Mines Safety and Inspection Act 1994* and the *Radiation Safety Act 1975* to the satisfaction of the DMP and the Radiological Council:

- the construction of the in-pit TSF;
- minimise leaching of tailings into groundwater; and
- compliance monitoring, auditing and reporting of the TSF to ensure the long term integrity of the TSF.⁵⁴

⁴⁹ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 20.

⁵⁰ *Response to appeals*, EPA, 19 September 2014, p. 3.

⁵¹ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 22.

⁵² *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, p. 22.

⁵³ *Report and recommendations for the Wiluna Uranium Project (Report 1437)*, EPA, May 2012, p. v.

⁵⁴ *Report and recommendations for the Wiluna Uranium Project (Report 1437)*, EPA, May 2012, p. 13.

This advice is not expressly stated in the Kintyre Uranium Project report. While it is anticipated that these matters can be regulated in the same way, it is recommended that the Minister seek confirmation from the relevant agencies through any consultation commenced under section 45(1) of the EP Act that the specifications and standards required for the TMF and flood protection works can be applied to ensure the proposal does not lead to unacceptable impacts to inland water quality.

Subject to clarification that the design specifications of flood embankments and mitigation can be the subject of legally enforceable conditions, it is considered the EPA's assessment of the risks posed by flooding was justified.

Contamination from previous activities

Some appellants expressed concern that previous exploration activities may have resulted in contamination of water resources in the area.

In its response to this issue, the EPA stated that exploration was not part of the proposal and cannot be considered by the EPA as a part of the assessment.⁵⁵

The proponent advised:

In 2010, prior to commencement of drilling at Kintyre, Cameco analysed a number of groundwater samples to establish baseline groundwater quality. The samples taken from across the region showed very low levels of gross alpha and beta radiation, as would be expected from a groundwater source where the local geology hosts uranium. However these levels do not present a risk to human health.

A presentation ... to the communities included material on groundwater and demonstrated there is no risk to human health from the consumption of potable ground and surface water.

Cameco has conducted extensive groundwater hydrology modelling and testing at Kintyre. The surveys show that the movement of groundwater is from the south to the north. Therefore the flow is away from the Parnngurr community.⁵⁶

From the information available in respect to this element of the appeal, water in the region exhibits some level of radiation, consistent with uranium present in the environment. On the advice of the proponent and the EPA, the radiation levels taken from across the region do not present a risk to human health.

As noted above, it is recommended that as part of the consultation process under section 45(1) of the EP Act, the Minister seeks advice from relevant decision making authorities in respect to monitoring of radiation levels at sites in proximity to the proposed mine area which are used by local communities to verify radiation levels meet predicted outcomes.

Water abstraction

In its appeal, the Conservation Council submitted that due to the lack of information about groundwater availability and recharge in the region, the EPA's consideration of risks associated with groundwater abstraction was inadequate.

The EPA did not consider water abstraction to be a key environmental factor for this proposal. This is on the basis of advice from the Department of Water (DoW) that water demand for the project would be met through dewatering and water related issues can be managed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) licensing process.⁵⁷

⁵⁵ *Response to appeals*, EPA, 19 September 2014, p. 7.

⁵⁶ *Response to appeals*, Cameco, September 2014, p. 5.

⁵⁷ *Report and recommendations for the Kintyre Uranium Project (Report 1522)*, EPA, July 2014, Appendix 3.

In its response to this element of the appeal, the proponent stated:

The water demand for the Project will be 3.1 MLpd (1,132 MLpa). This compares with Telfer's water use of 20,425 MLpa (Newcrest Mining Sustainability Report 2013).

Water will be sourced from pit dewatering, opportunistic capture of stormwater runoff, recycled from the process plant and make-up water from the process water supply borefield. Small volumes of potable water will also be sourced from a separate water supply borefield. The process plant has been designed to maximise water and reagent recycling.⁵⁸

In relation to the recharge of groundwater within the vicinity of the proposal, the ERMP noted:

Long-term monitoring of water levels shows that there has been a significant rise between 1988 and 2010, which corresponds to a period of higher than average annual rainfall. Recharge rates in the area have been significantly higher than the long-term average, with the increase in groundwater recharge much larger than the 50% increase in rainfall.⁵⁹

From the information provided in respect to this element of the appeal, the volume of water proposed to be abstracted is significantly less than the volumes abstracted for the Newcrest gold mine at Telfer. Advice from the DoW is that water abstraction can be adequately managed under the RIWI Act. Given this, it is considered that the EPA's assessment in respect to water abstraction was justified. Should additional guidance be required in this regard, the consultation process under section 45(1) provides an opportunity for relevant decision making authorities to provide comment on whether or not the proposal should be implemented, and if so, the adequacy of the proposed conditions.

After the end of mining, a closure cover will be placed over the TMF to limit water infiltration to the tailings. The object of this action is to minimise the potential for radionuclides to escape from the site over time. Modelling referred to in the ERMP was submitted as a basis for the conclusion that 'a negligible volume of water, if any, will wet the tailings for the range of storm events examined' and that 'no discharge from the liner overdrain system is expected in the longer term'.⁶⁰

Recommendation

Having regard to the foregoing, it is recommended that the Minister seeks confirmation from relevant agencies under section 45(1) of the EP Act that legally enforceable conditions can be applied to the proposal to ensure:

- the liner system of the TMF meets best practice requirements in terms of leachate recovery and permeability; and
- the specifications and standards required for flood protection works can be applied to prevent unacceptable impacts to inland water quality.

It is otherwise recommended this ground of appeal is dismissed.

⁵⁸ *Response to appeals*, Cameco, September 2014, p. 5

⁵⁹ *Kintyre Uranium Project ERMP*, November 2013, para 8.4.4.2.

⁶⁰ *Kintyre Uranium Project ERMP*, November 2013, para 8.12.5.5.

GROUND 4 – HYDROLOGICAL PROCESSES

The majority of appellants contend that the ERMP demonstrated a lack of understanding of the local hydrological processes and that knowledge from traditional owners was not taken into account. In this regard, concerns were expressed that the assessment failed to take into account that during flood events, water from Yantikutji Creek can flow into the Karlamilyi National Park.

For example, the Parnngurr Community appeal submitted:

Many people in the community have traditional knowledge about how the surface water interacts with the groundwater. Martu elders in the community can describe how the water from Yantikutji flows underground and back into the National Park meeting up with the Karlamilyi River and into Lake Dora where there are a number of fresh water springs that emerge in the salt lake. The water flows are unique and complex, the traditional knowledge is deep and important. There are very strong concerns and fears about the mine going ahead and the impact it will have on a network of water bodies that it is very clear the proponent, the Government agencies involved and the hydrologists involved don't understand. The community do not want the mine to go ahead because of the impacts to water, which many people already fear has been damaged through exploration activity.⁶¹

Consideration

In its response to this ground of appeal, the EPA stated:

The major potential impact from the project on hydrological processes is the flooding of the site and the pit lake... [S]tudies by two consultants were undertaken by the proponent to assess flooding of the site and the EPA Report notes that the flood protection bund would be developed for a probable maximum flood plus one metre. The flood protection bund is a precautionary measure to prevent water going off-site. The proponent has demonstrated a key component of the EPA's assessment process in applying the mitigation hierarchy to avoid impacts. Hence, even if a flood occurs, the water from the proposal is likely to be contained on site, so the direction of its flow is less important.

The EPA Report notes ... that the flood protection bund would also ensure that water does not flow out of the pit lake during flooding after closure of the site. Page 10 of the EPA Report notes that the pit lake water is unlikely to flow out of the pit from other pathways such as a density driven plume. Page 15 of the EPA Report also notes that the DoW's advice indicates that the pit lake would be a terminal sink and water would not flow out of the pit. Hence, it is unlikely that any water would flow offsite after closure of the mine.

The EPA noted in Appendix 3 of the EPA Report that the traditional owners of the site, the Martu People, have signed an Indigenous Land Use Agreement with the proponent and the proponent has agreed to place buffers along the creeks surrounding the project area as a part of the agreement. The EPA also noted in Appendix 3 that the Department of Aboriginal Affairs did not raise any issues in relation to the proposal.⁶²

The proponent stated:

Cameco have [sic] consulted Martu people about surface water flow.

Cameco has acknowledged that during major flood events, surface water may flow along Yandagooge Creek, Coolbro Creek and then along the northwest – southeast trending dune system and flow easterly towards Rudall River. However, this is a distance of more than 100 km from the Project area ... Should mine waters leave the site under extreme rainfall conditions, the volume of surface water present would significantly dilute mine waters and have no adverse effect on the environment or the Punmu community.⁶³

The concerns raised by this ground of appeal relate to the potential for complex flood flows to transport radiation contamination from the mine site to Karlamilyi National Park and impact on water resources used by local communities.

⁶¹ Parnngurr Community appeal, 11 August 2014.

⁶² *Response to appeals*, EPA, 19 September 2014, p. 8.

⁶³ *Response to appeals*, Cameco, September 2014, p. 2.

From the information presented, it appears the proponent did take into account a connection between the Yantikutji catchment, and the Rudall/Karlamilyi River catchment during significant flood events. In officer-level discussions with the Office of the EPA, this connection was acknowledged, however it was considered that there should be no discharge from the mine site due to the flood protection works, and that even if a release occurred, the volume of flood water would mean any radiation would be significantly diluted, as submitted by the proponent.

As stated under Ground 3 of the appeal, it is important that measures to prevent release of radiation from the mine site are the subject of legally enforceable conditions. In its assessment, the EPA has identified that such controls can be applied by other agencies, including in respect to the TMF and flood protection works. As noted under the earlier grounds of appeal, it is recommended that the Minister ensure such mechanisms are available through any consultation under section 45(1) of the EP Act before any final decision is made on the proposal.

Recommendation

Refer to recommendations under Ground 3 of the appeal in respect to flood protection works. This ground of appeal is otherwise recommended to be dismissed.

GROUND 5 – TERRESTRIAL FAUNA

By this ground of appeals, concerns were raised about the assessment of the impacts of the proposal on terrestrial fauna values in the vicinity of the proposal, including within Karlamilyi National Park.

Some appellants contended that a number of critically endangered, vulnerable and priority fauna species are present in the area, and that these have not been adequately assessed by the EPA. One appellant was critical that annual inspection data on significant fauna was not provided by the proponent.

Concerns were also raised in respect to the impacts of radiation on fauna.

Consideration

In its response to this ground of appeal, the EPA stated that:

The proponent undertook fauna studies within and outside the project area and undertook an assessment of potential radiation impacts to fauna, as noted on page 23 of the EPA Report. These studies were undertaken in accordance with the appropriate EPA guidance for fauna surveys.

On page 23 of the EPA Report, the EPA notes that the proponent has undertaken additional targeted surveys outside the project area and that the Department of Parks and Wildlife has advised that impacts to conservation significant values in the area can be managed through conditions. The EPA notes (page 26 of the EPA Report) that the Commonwealth Department of the Environment considers that impacts to fauna (non human biota) from radiation are low risk, but recommends that the methodology for assessment of non human biota needs to be updated as the science in this area evolves.

The EPA Report notes (page 23) that most of the conservation significant fauna were found outside the development envelope for the proposal. The EPA has noted (page 24) that fauna may move within the development envelope and that the proponent should verify its non-human biota assessment due to a lack of data on Australian species. The EPA recommended the following conditions relating to terrestrial fauna:

- A condition (condition 6) to develop a fauna management plan on advice from the Department of Parks and Wildlife, to reduce impacts to conservation significant fauna during construction and operations; and

- A condition (condition 7) to ensure any potential impacts from radiation to fauna is assessed and managed in accordance with international best practice requirements, in consultation with the Supervising Scientist.

The Department of Parks and Wildlife and the Commonwealth Department of the Environment did not raise any issues with the conditions prior to the release of the EPA Report.⁶⁴

The proponent advised:

Of the 29 conservation significant species which could occur within the Kintyre Project area, 16 have been recorded ... However, a couple of these records were unconfirmed (from scats or tracks) and six of these were from historic records only. Significant fauna species most relevant to the Project are the Greater Bilby and Crest-tailed Mulgara. A Rock-Wallaby was also recorded from scats, but this is most likely to be *Petrogale rothschildi* (not threatened).

Potential impacts are habitat loss, habitat fragmentation, disturbance, changed fire regimes and interactions with other species. Proposed management measures are outlined in the Fauna Management Plan (Appendix D10).

A number of historical baseline survey reports not presented in Appendix M were provided with the response to submissions.⁶⁵

The EPA's objective for terrestrial fauna is:

... to maintain representation, diversity, viability and ecological function at the species, population and assemblage level.⁶⁶

As noted in its response to the appeals, the EPA has recommended two conditions be applied to the proposal:

- condition 6 – requires the preparation and implementation of a Conservation Significant Fauna Management Plan (CSFMP), relating to direct impacts to conservation significant fauna species; and
- condition 7 – requires the preparation and implementation of a Non-Human Biota Management Plan, which relates to possible radiation impacts to non-human biota.⁶⁷

In relation to conservation significant fauna, and based on advice from Parks and Wildlife, the EPA recommended condition 6 be applied to the proposal 'ensure the proponent undertakes surveys to refine the disturbance footprint and location of infrastructure, and implements management and mitigation measures if required'.⁶⁸ Noting this condition (and condition 7, which is addressed below), the EPA concluded that the proposal can be managed to meet its objective in respect to terrestrial fauna.⁶⁹

As currently drafted, condition 6 does not specifically identify the refinement of the disturbance footprint and relocation of infrastructure as an outcome of the plan. For consistency with the EPA's report, if the proposal is approved, it is considered that condition 6-3 should be amended to articulate that the CSFMP should include measures to refine the disturbance footprint and relocate infrastructure in order to achieve the objective in condition 6-2.

⁶⁴ Response to appeals, EPA, 19 September 2014, p. 7.

⁶⁵ Response to appeals, Cameco, September 2014, p. 6.

⁶⁶ Report and recommendations for the Kintyre Uranium Project (Report 1522), EPA, July 2014, p. 22.

⁶⁷ Report and recommendations for the Kintyre Uranium Project (Report 1522), EPA, July 2014, Appendix 4.

⁶⁸ Report and recommendations for the Kintyre Uranium Project (Report 1522), EPA, July 2014, p. 24.

⁶⁹ Report and recommendations for the Kintyre Uranium Project (Report 1522), EPA, July 2014, pp. 24-25.

The object of the CSFMP is to reduce impacts to conservation significant fauna during construction and operations. Three species are identified in the condition: bilby, mulgara and rock wallabies. These species are identified for particular focus as of the 16 conservation significant fauna species recorded at the site, only these three species have been recorded since 2007.⁷⁰ The three species are identified by their common names in the EPA's recommended conditions, but are understood to refer to:

- Bilby: *Macrotis lagotis*;
- Mulgara: Crest-tailed mulgara (*Dasyercus cristicauda*) and the Brush-tailed mulgara (*D. blythi*); and
- Rock wallabies: black-flanked rock wallaby (*Petrogale lateralis lateralis*) and Rothchild's rock wallaby (*Petrogale rothschildi*) (the latter is not of conservation significance).⁷¹

In advice to the Office of the EPA during the assessment process, Parks and Wildlife advised:

The proponent appears to have suitably addressed the matters raised in Parks and Wildlife's comments on the Environmental Review and Management Program. The impacts of the proposal on significant conservation values in the area could be appropriately managed through the use of implementation conditions applied under Part IV of the *Environmental Protection Act* 1986, including the proponent's commitments. In particular, Parks and Wildlife would support suitable conditions requiring:

- pre-clearing fauna surveys;
- mitigation/management of impacts on conservation significant fauna individuals (if identified and likely to be impacted); and
- ongoing consultation with the department for matters related to the department's responsibilities, including conservation of significant fauna and Karlamilyi National Park.⁷²

While the department's advice refers to fauna and conservation significant fauna, officer-level advice was that the recommendation for a pre-clearing fauna survey was primarily directed towards wallaby species.

In response to the ERMP document, the Commonwealth Department of the Environment (DotE) raised the following matter in relation to fauna:

[DotE] requires further clarification on species listed in Table 8-16 and requests a summary of why certain species are likely/unlikely to be impacted and the extent of potential impact. The discussion of potential impact should also include a disturbance to each habitat type within the project area.⁷³

In its response to this submission, the proponent stated:

Prior to any disturbance, pre-clearing surveys will be undertaken to confirm if **any species of conservation significance** occur within the proposed area of clearing.⁷⁴ (emphasis added)

The proposal requires approval under the EPBC Act, and it is possible that if the proposal is approved, conditions relating to fauna will be applied under that Act which will require surveys of the kind contemplated above (to the extent of the Commonwealth's powers).

Noting the foregoing, it is considered the EPA's recommended condition 6-3(1) – in limiting the pre-clearing survey to three listed species – is consistent with the EPA's assessment of the risks posed by the proposal to terrestrial fauna. However, for clarity, it is recommended that the Minister consults with relevant decision making authorities under section 45(1) of the EP Act to confirm whether a broader survey is required, as appears to be contemplated in the proponent's response to submissions.

⁷⁰ Kintyre Uranium Project ERMP, November 2013, para 8.6.5.

⁷¹ Kintyre Uranium Project ERMP, November 2013, para 8.6.4.1.

⁷² Advice to the Office of the EPA, Department of Parks and Wildlife, 30 May 2014.

⁷³ Response to Agency Submissions, Kintyre Uranium Project, Cameco, undated, submission 35.

⁷⁴ Ibid.

It is also recommended that condition 6-3(1) be amended to delete the words “that may have moved into” and replace with “within”. This amendment removes any ambiguity about whether an animal has ‘moved into’ the area; rather, the condition is directed towards identifying all relevant conservation significant animals within the development envelopes.

Radiation impacts to non-human biota (recommended condition 7) were considered under Ground 2 of this appeal in respect to bush tucker. On that ground of appeal, it was recommended that the Minister give consideration to extending condition 7 to require the proponent to undertake monitoring of radiation dose rates to relevant bush tucker species in the vicinity of the mine, such that the dose rates to humans predicted through the ERMP can be verified. This appears to be consistent with the EPA’s report in relation to terrestrial fauna which states that the proposal can be managed to meet its objectives, subject to:

[A] condition being imposed requiring **any potential impacts to non-human biota** to be assessed and managed in accordance with international best practice. The EPA has therefore recommended condition 7 ...⁷⁵ (emphasis added)

With the above changes, it is considered the recommended conditions adequately address the concerns raised by this ground of the appeals.

Recommendation

Having regard to the foregoing, it is recommended that this ground of appeal be allowed in part as follows:

- condition 6-3 should be amended to articulate that the CSFMP should include measures to refine the disturbance footprint and relocate infrastructure in order to achieve the objective in condition 6-2;
- the Minister consults with relevant decision making authorities under section 45(1) of the EP Act to clarify whether condition 6-3(1) should be amended to require the pre-clearing survey to include any species of conservation significance; and
- delete “that may have moved into” in condition 6-3(1) and replace with “within”.

The recommendation under Ground 2 of this appeal in respect to non-human biota (recommended condition 7) is also noted in the context of this ground of appeal.

GROUND 6 – CONSULTATION

A number of appellants believed that there was a lack of transparency and opportunity for public comment throughout the assessment process. For example, the Parnngurr Community appeal stated:

The appellants have spoken out against the proposed uranium mine and have continuously stated the same concerns since the mine was first proposed at Kintyre many years ago. The concerns of the Parnngurr Community have not changed but the dynamics of how decisions are made has ... The Parnngurr Community do not support the mine and don't feel that their representative bodies have represented this view and sentiment, there has not been informed consent and we actively contest claims that a majority of Martu agree with the mine.

The community was not informed about the [ERMP] and the opportunity to make public comment. There [were] no documents that were sent to the community to review. We are really disappointed that no-one bothered to inform us about our rights to engage in this process. No-one really explains what's happening. It's not right that they should go forward with plans without talking about them with the Native Title holders that live in the communities closest to the mine.⁷⁶

⁷⁵ Report and recommendations for the Kintyre Uranium Project (Report 1522), EPA, July 2014, p. 25.

⁷⁶ Parnngurr Community appeal, 11 August 2014.

Other concerns included that the ERMP document was released in an incomplete form, and that as a result, a number of additional appendices were released at the same time as the EPA's report. In the view of appellants, these new documents contained substantial new information about the proposal and the potential environmental impacts of the proposal, which were not available during the 14 week public review period.

One appellant identified what he submitted were fundamental errors in the proponent's assessment documentation that warranted a reassessment by the EPA to allow the public a full opportunity to comment on the proposal.

Consideration

In its response to this ground of appeal, the EPA stated:

The EPA followed the consultation requirements outlined in the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2012* (Administrative Procedures 2012) for the assessment. As per the Administrative Procedures 2012, there were several stages for public comment on this proposal. There was opportunity to comment on the referral (one week), the environmental scoping document (two weeks) and the ERMP (14 weeks). The normal period of time for public comment on a public environmental review document specified in Administrative Procedures 2012 is between 4 and 12 weeks. Therefore the EPA has provided this proposal more than the maximum period for public comment on public environmental review documents.

In addition to the allocated time to provide comment, considerable effort was made to ensure the document was widely disseminated. Copies of the ERMP were provided to the following organisations:

- Department of the Environment (Commonwealth)
- Department of Parks and Wildlife
- Department of Environment Regulation
- Department of Transport
- Main Roads
- Department of Mines and Petroleum
- Department of Aboriginal Affairs
- Department of Water
- Department of Health
- Radiation Council
- City of Kalgoorlie-Boulder
- Shire of Menzies
- Shire of Leonora
- Shire of Sandstone
- Shire of Mount Magnet
- Shire of Cue
- Shire of Meekatharra
- Shire of East Pilbara
- Town of Port Hedland
- Goldfields Esperance Regional Development Commission
- Pilbara Development Commission
- Western Desert Lands Aboriginal Corporation
- Greens (WA) MLC Member for Mining and Pastoral Region
- Australia Conservation Foundation
- Conservation Council of WA
- Anti Nuclear Alliance of WA

In addition to the above, copies of the ERMP were made available to the public at the start of the public review period at the following libraries:

- Department of Environment Regulation Library (Perth)
- State Library of Western Australia (Perth)
- Newman Community Library (Newman)
- Port Headland [sic] Library (Port Headland [sic])
- William Grundt Memorial Library (Kalgoorlie)
- Menzies Public Library (Menzies)
- Leonora Library (Leonora)
- Sandstone Library (Sandstone)
- Mount Magnet Library (Mt Magnet)
- Cue Library (Cue)
- Meekatharra Library (Meekatharra)

Copies of the document were made available for free download on the proponent's website and the proponent made copies available to any person who requested a copy of the ERMP.

The EPA received advice from the traditional owner's representatives and the Office of the EPA provided a presentation to the Martu People during the initial stages of assessing the proposal. The EPA noted in Appendix 3 of the EPA Report that the traditional owners of the site, the Martu People, have signed an Indigenous Land Use Agreement with the proponent and the proponent has agreed to place buffers along the creeks surrounding the project area as a part of the agreement. The EPA also noted in Appendix 3 that the Department of Aboriginal Affairs did not raise any issues in relation to the proposal.⁷⁷

In its response to this ground of appeal, the proponent stated:

Cameco respects the right of Martu to speak for land. Martu people hold native title rights over the Kintyre area and Cameco has consulted and successfully negotiated an Indigenous Land Use Agreement with Martu, including representatives from the Parnngurr Community, to develop the Kintyre Project. The Martu are represented by the Western Desert Lands Aboriginal Corporation (WDLAC). WDLAC has a strong Martu Board who participated in all levels of consultation.

Cameco has undertaken many community visits and made presentations to the community on all aspects of the Mining project. All of these meetings were conducted with the authority of the WDLAC Board and were attended by representatives of the WDLAC Executive, other legal, heritage or environmental advisors attending on behalf of WDLAC and Martu and representatives of the Board. Cameco is also aware that the communities were consulted comprehensively by WDLAC and the Board about the project and received many briefings by WDLAC lawyers and environmental consultants.

Cameco has also undertaken a number of special projects to assist communication and understanding about the project and potential environmental impacts. These included:

- Taking a group of Martu people to Canada to visit operating mines and talk to indigenous Canadians about Cameco, uranium mining and business and employment opportunities through mining.
- Funding a consultant to undertake a social impact assessment, which included visiting all of the communities twice.
- Funding a WDLAC consultant (a communications specialist) to develop a communication package about mining and environmental management in Martu language.

Cameco respected the wishes of the Martu WDLAC Board when it came to formal aspects of reviewing the ERMP. At WDLAC's request, Cameco funded a third party environmental consultant to review the draft ERMP and the final ERMP on behalf of WDLAC and to advise the Board. This decision was made on the basis that it was inappropriate to expect Martu people to review and respond to the proposal. Therefore while it may appear to the community there was little or no opportunity to respond, there was indeed a formal and professional review undertaken on their behalf.

⁷⁷ Response to appeals, EPA, 19 September 2014, pp. 9-10.

Cameco understands that “fear of the unknown” may deter people from camping and hunting and gathering or from driving past the Kintyre Project, however this has not been evident over the last five years while Cameco has been active in the region.

Many Martu people have been regular visitors to the camp over that period calling in for fuel, food and other assistance. In excess of 70 individuals have been engaged in employment on exploration activity. Many others have participated in heritage and environmental surveys of the Project Area.

Of the individuals who have signed the petition attached to the Appeal, some have worked at Kintyre, some have been involved in heritage surveys, and others are signatories to the ILUA.

Martu people have also engaged in hunting activity on the Kintyre Project area during exploration activity.

In relation to notice to the community about exploration activity, Cameco has Land Use and Exploration Agreements with WDLAC. These Agreements require Cameco to provide written notice to WDLAC detailing our plans for ground disturbing activity.

Following receipt of the notice, WDLAC consults with the community and selects people to attend a site visit to view the areas proposed to be explored and to conduct a formal heritage clearance survey. In most cases, the group will include individuals from the Parnngurr community, as well as from Jigalong and other communities further afield. The site tours can take from several days up to a week, with Cameco taking the Martu group to each location, discussing the type of ground disturbance and exploration activity proposed. On all occasions these visits are facilitated and attended by a WDLAC anthropologist.⁷⁸

During the appeal investigation, advice was sought from the proponent as to whether it had undertaken consultation with individual Aboriginal communities, such as Parnngurr. It advised that it uses a ‘front door’ approach, such that contact is through the representative body, in this case Western Desert Lands Aboriginal Corporation (WDLAC). Through this process, the proponent indicated that it had been to the Parnngurr Community and discussed issues with members of the community.

WDLAC is the prescribed body that holds native title rights and interests in trust for the native title holders identified in the native title determination in respect to the Martu people.⁷⁹ This includes the land the subject of this appeal. As such, it is considered the proponent acted appropriately in consulting with WDLAC in respect to the proposal.

The Parnngurr Community is the closest Martu settlement to the proposed mine. From the appeal, and discussions with a representative of the Community, concern was expressed that there was no consultation with the Community in respect to the proposal, and that WDLAC was not representative of the views of the majority of Martu people in relation to the proposal. In essence, the Community considered that they were bypassed during the assessment process and were therefore not provided with an opportunity to have meaningful input into the EPA’s report.

From the information provided by the EPA, copies of the ERMP were provided to WDLAC and made available in regional locations, including at Newman. The Parnngurr Community is approximately five hours drive from Newman, the closest town to the Community. The EPA also noted that it set the public consult period at 14 weeks, which was above the normal consult period of between 4 and 12 weeks (this followed earlier appeal decisions in which the then Minister for Environment extended the public review period for uranium mines from 10 to 14 weeks having particular regard to time delays in communication to Aboriginal communities in remote areas).⁸⁰

⁷⁸ *Response to appeals*, Cameco, September 2014, pp. 13-14.

⁷⁹ *James on behalf of the Martu People v State of Western Australia (No. 2)* [2003] FCA 731

⁸⁰ See for example Minister’s appeal determination on Yeelirrie Open Cut Uranium Project, 9 October 2009 (appeals 255-263 of 2009).

Given the above, it is considered appropriate for the proponent and EPA to have consulted with WDLAC, as the prescribed body for the Martu native title determination. However for completeness, it is also considered that the EPA ought to have provided a copy of the ERMP document directly to the Parnngurr Community, as the Martu Community most directly impacted by the proposed mine.

Through the appeal, the Parnngurr Community has had the opportunity to put its views on the proposal to the Minister before a final decision is made. This includes video presentations by members of the Community. Given this, it is considered the Community has (in exercising its appeal rights) been afforded the opportunity to have its concerns taken into account. The substantive matters raised in the Community appeal are considered above, in respect to bush tucker, water and hydrogeological processes.

In relation to concerns raised in appeals in respect to the release of a number of new documents with the EPA's report, the EPA advised:

The EPA has considered the proposal on its merits and provided considerable opportunity for public comment on the proposal ... [T]here were three opportunities to the public to comment on the proposal during the referral, scoping and public review stages of the assessment. The total period of time for comment was nearly four months. The only other recent proposal to be available for a similarly long public comment period was the Wiluna Uranium Project.

To adequately respond to the comments received during the public comment period the proponent undertook some additional studies on key items e.g. flooding and pit lake. However, this did not change the proposal from what was presented in the ERMP or earlier stages of the assessment process. The additional studies were undertaken to show that the proponent had adequately considered the public comments to the satisfaction of the EPA.⁸¹

As is usual in public review processes under Part IV of the EP Act, a 'response to submissions' document is prepared by the proponent which addresses submissions made by members of the public. On the advice of the EPA, this included the preparation of some additional studies by the proponent. It is a judgement call as to when additional information submitted through this process is such that a further public review period is required. In this case, the EPA, using its guidance and judgement, determined that the additional information and response to submissions did not change the proposal such that any additional consultation was required.

In these circumstances, it is considered that the EPA was best placed to consider the implications of the content of the new information, and that based on its advice, it is considered that the new information was not so significant to warrant a fresh period of public consultation or the assessment of the proposal as a new proposal.

Recommendation

Based on the above information, it is recommended that this ground of appeal is dismissed. It is recommended however that the Minister requests the EPA to review its procedures in respect to consultation with Aboriginal communities in remote areas to ensure that the communities closest to a proposal are directly consulted, rather than this being undertaken solely through the prescribed native title body or local government offices.

⁸¹ *Response to appeals*, EPA, 19 September 2014, pp. 11-12.

GROUND 7 – PAST BEHAVIOUR OF THE PROPONENT

Some appellants contend that the proponent has a poor record for accidents from other projects it operates around the world, which should be taken into account with this assessment.

Consideration

In its response to this ground of appeal, the EPA advised:

The EPA assessed the proposal on its merits, took into consideration how best practice on other uranium mines would be applied to the proposal and what regulatory regimes were available to regulate the proposal. For example, the EPA notes on page 19 of the EPA Report that the estimated radiation doses to workers are similar to other uranium mines in Australia and are much lower than the respective dose limits for radiation. The EPA also notes on page 19 that both key agencies responsible for radiation management; the Radiological Council and the DMP, are satisfied with the proposal as outlined in the ERMP and consider that the dose assessment was suitable. As noted above, the EPA has advised relevant agencies on the aspects of the proposal that these agencies need to focus on to ensure it is implemented to a best practice standard.⁸²

The proponent advised:

Cameco Corporation measures its safety, environmental, social and financial performance using key performance indicators based around the following four measures of success:

- a safe, healthy and rewarding workplace;
- a clean environment;
- supportive communities; and
- outstanding financial performance.

The overall governance of safety, health, environment and quality at Cameco begins with the Safety Health Environment and Quality (SHEQ) policy, which states the commitment of the senior management of Cameco to the following principles:

- keeping risks at levels as low as reasonably achievable;
- prevention of pollution;
- complying with, and moving beyond legal and other requirements;
- ensuring quality of processes, products and services; and
- continually improving our overall performance.

Details of recent achievements in relation to environmental and radiation management as well as in the area of corporate and social responsibility are detailed in the ERMP.

Cameco has recently released its 2014 Sustainability Report which includes further discussion on environmental and community progress and improvement.⁸³

Recommendation

The past performance of proponents is a matter that may be relevant to any final decision on a proposal under section 45 of the EP Act. As noted under Ground 1 of the appeal, the environmental record of a proponent is a relevant consideration for the Minister in exercising his or her discretion to require a financial assurance within the meaning of Part VA of the Act.⁸⁴

⁸² *Response to appeals*, EPA, 19 September 2014, p. 13.

⁸³ *Response to appeals*, Cameco, September 2014, p. 16.

⁸⁴ Section 86C(2)(e) of the EP Act.

GROUND 8 – PROCESS ISSUES

Appellants raised a number of issues relating to the EPA's processes, which broadly relate to the following subject matter:

- precautionary principle; and
- deferral to other agencies and adequacy of the regulatory framework.

These matters will be addressed in turn.

Precautionary principle

By this element of the appeals, a number of appellants asserted that the EPA failed to apply the precautionary principle in its assessment of the proposal.

In response to this element of the appeals, the EPA advised:

The EPA undertook the assessment consistent with the Administrative Procedures 2012. The EPA has taken a precautionary approach to the proposal and focused on the use of best practice science for the regulation of the proposal. In Appendix 3 of the EPA Report, the EPA showed how it had regard to the principles of the *Environmental Protection Act 1986*, including the precautionary principle. For example, on page 12 of the EPA Report, the EPA notes that the proponent would be developing a flood protection bund for a probable maximum flood event plus one metre. The flood protection bund is considerably greater than the typical flood diversion controls for other mining proposals which are usually designed for a 100 year event. A flood protection bund of this size has been applied to other uranium projects in Australia (e.g. Wiluna Uranium Project) and while precautionary, is a best practice approach for uranium projects.

Another example of the EPA taking a precautionary approach and applying best practice is on page 24 of the EPA Report where the EPA recommended a condition for non-human biota. On page 26 of the EPA Report, the EPA notes that the Commonwealth Department of the Environment identified impacts to non-human biota as a low risk. However, the EPA has acknowledged on page 24 of the report that there are some uncertainties with the assessment of non-human biota in Australia (i.e. limited data on Australian species) and the proponent needs to ensure that they continue to update their approach with the evolving science in the area and undertake on-the-ground monitoring to verify modelling results.⁸⁵

As noted under Ground 2 of this report, the object of the EP Act 'is to protect the environment of the State'.⁸⁶ This object is to be given effect having regard to a number of principles, including the precautionary principle.

Having regard to the matters raised by this element of the appeals, and the advice of the EPA, it is considered the EPA did have regard to the precautionary principle in its assessment of the proposal. In addition, the object of the EP Act is also relevant to any final decision on the proposal under section 45 of the Act.

Deferral to other agencies and adequacy of the regulatory framework

By this element of the appeals, some appellants contended that it was not appropriate for the EPA to pass the regulation of impacts to other agencies, such as mine closure, radiation and water licensing. The appellants considered that the other agencies do not have the legislation, resources or expertise to assess environmental impacts.

One appellant contended that conditions recommended by the EPA were inadequate. Conditions should be included on tailings management, radiation, dust management and water quality.

One appellant contended that the DMP has failed to enforce environmental policy and conditions; and regulate tailings.

⁸⁵ *Response to appeals*, EPA, 19 September 2014, p. 11.

⁸⁶ Section 4A of the EP Act.

In response to these issues, the EPA advised:

The EPA considered the regulatory powers and expertise of other agencies during the assessment of the proposal. The EPA outlined the key agencies for regulation of the radiological aspects of proposal on page 7 of the EPA Report. During its assessment, the EPA received advice from key agencies regarding their ability to regulate certain aspects of the proposal, to meet the EPA's objectives (e.g. page 15 of the EPA Report for water licensing). The EPA has also advised agencies of the requirements for certain aspects of the proposal which need particular focus or where certain specialist technical skills are required. For example, the EPA, as noted above, has advised the DMP that they should enter a formal agreement with the Supervising Scientist regarding certain aspects of uranium mines, such the development of landform evolution models. The EPA recognises that the Supervising Scientist is a world leader for assessing such aspects of uranium mines and this approach will ensure uranium mines are implemented in accordance with world's best practice. The EPA does not have the same capacity as the Supervising Scientist regarding certain technical aspects of uranium mines. The Supervising Scientist was set up as the agency to monitor and provide technical guidance on uranium mines.

The EPA Report notes on page 7 that the Radiological Council and the DMP would both be regulating the closure of the mine. The EPA has noted that the Commonwealth Department of the Environment is also likely to regulate aspects of the proposal, including radiation and mine closure. The EPA has provided specific advice to the DMP on closure, including the development of agreements with specialist technical groups (Supervising Scientist) and making mine closure plans publically available to ensure the public are informed on how the site will be closed (page 17 of the EPA Report). The EPA has also provided advice on the design of the mine site to DMP, including the tailings management facility and evaporation pond (page 26). The EPA notes that it has thoroughly assessed each aspect of the mine but rather than duplicate existing processes, its focus has been to bring them into alignment with world's best practice through the provision of prescriptive advice. The EPA has been advised that measures, such as the Memorandum of Understanding between the Supervising Scientist and DMP, are currently being developed.

In summary, the EPA was satisfied that the impacts of the proposal, if implemented, can be appropriately managed through existing statutory and regulatory mechanisms, without further environmental conditions.⁸⁷

In respect to Grounds 1, 2 and 3 of these appeals, it is recommended that the Minister seek clarification through any consultation with decision making authorities under section 45(1) of the EP Act that certain matters identified in the EPA's assessment can be the subject of legally enforceable conditions under other legislation. Assuming these matters can be adequately addressed by other agencies, the approach adopted by the EPA appears to be consistent with its Administrative Procedures 2012. Should conditions be required to address issues identified in the EPA's assessment, they can be applied to the proposal under section 45 of the EP Act.

In relation to the concerns raised in respect to the DMP in particular, including alleged shortcomings in its capacity to undertake compliance and enforcement of environmental conditions, the Auditor General on 19 November 2014 released a 'Follow-up Report' to Parliament on compliance with mining conditions.⁸⁸ In relation to the DMP's role, the report states:

DMP has addressed the weakness in its planning, monitoring and inspections of mines that we found in 2011. This means that it now has sound controls over receiving, analysing and acting on information from mine operators, whether from formal reporting or on-site inspections.

DMP has improved how it collects and analyses compulsory Annual Environmental Reports (AERs) from operators. In 2011 DMP rarely knew if operators had lodged AERs, and reviewed even fewer. The introduction of the new whole-of-life online management system (called EARS2) means that the receipt of, or failure to lodge, AERs is now automatically flagged. The new system gives increased oversight of important information about mine operations, and minimises the chance that poor outcomes or breaches of conditions will go unnoticed. The system also helps identify sites and operators for inspection and audit.

⁸⁷ *Response to appeals*, EPA, 19 September 2014, pp. 12-13.

⁸⁸ *Ensuring Compliance with Conditions on Mining – Follow-up*, Office of the Auditor General, 19 November 2014.

DMP now has a rigorous inspection approach to selecting which mines it will inspect. DMP has determined that all sites assessed as 'high risk' will be inspected each year, and that 20 per cent of all others will be inspected. It plans to inspect 181 mine sites in 2014-15 which represents approximately a quarter of all sites in WA. This should ensure that its coverage is adequate into the future.

There is now a clear process and documentation guiding DMP's inspection practices. Inspection activities and reporting requirements are now included in the EARS2 system. This gives greater consistency and oversight. It also allows DMP to analyse non-compliance across the board, which will help the department focus its inspection program. However, the inspection module on EARS2 was only implemented this year, and it will take time to assess what impact it has had. In the three months to September 2014, DMP inspections identified 27 cases at six mine sites which required corrective action by operators. None of these cases constituted serious non-compliance. In 2013-14, DMP reported major non-compliance on six sites.⁸⁹

In light of these findings, it is considered that the DMP's capacity to effectively manage environmental conditions relating to mine closure have improved since the Auditor General first reported on the matter in 2011.

Recommendation

It is recommended the Minister notes the matters raised under this Ground of appeal in any final decision on the proposal under section 45 of the EP Act.

OTHER MATTERS

Other matters were raised in appeals which are considered to be outside the scope of the appeal investigation. These matters are summarised below for noting by the Minister.

Karlamilyi National Park boundaries

An appellant submitted that the original boundaries of the national park should be reinstated, and therefore reincorporate the area excised for the mine proposal area.

Independent representatives to attend meetings to protect Aboriginal community interests

An appellant submitted that an independent person (from the Conservation Council or Greens WA) should attend all meetings regarding the proposal to ensure legal, fair and unbiased communication with Aboriginal people.

⁸⁹ *Ensuring Compliance with Conditions on Mining – Follow-up*, Office of the Auditor General, 19 November 2014, p. 7.

CONCLUSION AND RECOMMENDATIONS

Having regard to the foregoing, it is considered that the EPA's assessment of the proposal was appropriate, and consistent with the EPA's Administrative Guidelines.

It is recommended however that appeals be allowed to the extent that the Minister:

- seeks guidance from relevant decision making authorities that a condition reflecting the intent of the Legislative Council motion in respect to the TMF, and consistent with the closure plan applying to the Olympic Dam proposal, will be applied in this case;
- gives consideration to including a condition in any approval of the proposal requiring the proponent to undertake monitoring of radiation dose rates to relevant bush tucker species in the vicinity of the mine, such that the dose rates to humans predicted through the ERMP can be verified;
- seeks confirmation from relevant agencies that legally enforceable conditions can be applied to the proposal to:
 - ensure baseline and ongoing monitoring of radiation levels at sites of public use close to the mine site;
 - address risks associated with dust storms impacting on areas of public use close to the mine site;
 - ensure the liner system of the TMF meets best practice requirements in terms of leachate recovery and permeability; and
 - ensure the specifications and standards required for flood protection works can be applied to prevent unacceptable impacts to inland water quality;
- amend condition 6-3 to articulate that the CSFMP should include measures to refine the disturbance footprint and relocate infrastructure in order to achieve the objective in condition 6-2;
- consults with relevant decision making authorities to clarify whether condition 6-3(1) should be amended to require the pre-clearing survey to include any species of conservation significance; and
- delete "that may have moved into" in condition 6-3(1) and replace with "within".

It is also recommended that the Minister requests the EPA to review its procedures in respect to consultation with Aboriginal communities in remote areas to ensure that the communities closest to proposals are directly notified of proposals within their area.

It is also recommended that the Minister notes the matters raised under Ground 8 of the appeal in any final decision on the proposal under section 45 of the EP Act.

It is otherwise recommended the appeals be dismissed.

Kelly Faulkner
APPEALS CONVENOR

Investigating officer:
Jean-Pierre Clement, Deputy Appeals Convenor

APPENDIX 1 – LIST OF APPELLANTS

- Conservation Council of Western Australia (Inc)
- Hon Robin Chapple MLC
- Parnngurr Aboriginal Community
- Footprints for Peace
- M Atkinson
- J Bower
- G Davies
- K Fitzwater
- R Gulley
- P Hancock
- A Hunter
- K James
- E Manna
- D Vassallo
- J Wheare
- S Wylie

APPENDIX 2 – RELATED APPEALS

On 19 July 2007 the former Department of Industry and Resources (DoIR) granted clearing permit CPS 1847 to Canning Resources Pty Ltd for the clearing of up to 30.5 ha of native vegetation on Mining Leases 45/266, 45/267 and 45/420 and Prospecting Licences 45/2632, 45/2633, 45/2634, 45/2635, 45/2636, 45/2637, 45/2638, 45/2639, 45/2640, 45/2641 and 45/2642 for the purpose of mineral exploration associated with the Kintyre Evaluation Study, subject to conditions including flora management, fauna management, weed control, and recording and reporting. The clearing permit was revoked.

On 10 April 2008 the Department of Environment and Conservation (DEC) granted clearing permit 2192 to Boxcut Mining Pty Ltd for the clearing of up to 21.33 ha of native vegetation on Exploration Licences 45/2690 and 45/2691 for the purposes of exploration drilling movement and a temporary camp area associated with the Kintyre Rocks Uranium Project, subject to conditions including minimising clearing, weed control, fauna management, revegetation, and recording and reporting. The clearing permit expired on 10 November 2010.

On 18 September 2008 the DoIR granted clearing permit 2571 to Boxcut Mining Pty Ltd for the clearing of up to 13.1 ha for the purpose of mineral exploration on Exploration Licences 45/2690 and 45/2691 for the purpose of mineral exploration associated with the Kintyre Rocks Uranium Project, subject to conditions including minimising clearing, weed control, fauna management, riparian vegetation management, rehabilitation, and recording and reporting. The clearing permit expired on 10 November 2010.

In June 2009 the DMP granted clearing permit CPS 3057 to Cameco Australia Pty Ltd for the clearing of up to 44.5 ha of native vegetation on Prospecting Licences 45/2632, 45/2633, 45/2634, 45/2635, 45/2636, 45/2637, 45/2638, 45/2639, 45/2640, 45/2641 and 45/2642 for the purposes of mineral exploration, and ecological, hydrological and geotechnical investigations associated with the Kintyre Drilling Project, subject to conditions including minimising clearing, weed control, and recording and reporting. The clearing permit expired on 30 June 2011.

In June 2009 the DMP granted clearing permit CPS 3058 to Cameco Australia Pty Ltd for the clearing of up to 31.05 ha of native vegetation on Mining Leases 45/264, 45/266, 45/267 and 45/420, Exploration Licence 45/1772 and Prospecting Licences 45/2640, 45/2642 and 45/2643 for the purposes of mineral exploration, ecological, hydrological and geotechnical investigations and associated infrastructure associated with the Kintyre Infrastructure Project, subject to conditions including minimising clearing, weed control, and recording and reporting. The clearing permit expired on 30 June 2011.

In October 2010 the Environmental Protection Authority (EPA) set the level of assessment at 'Environmental Review and Management Programme' (ERMP) in respect to a proposal by Cameco Australia Pty Ltd to develop and operate the Kintyre Uranium Project. Four appeals were received (085-088/10) in objection to the level of assessment, of the view that proposal should be subject to a public inquiry on the basis that the proposal will have impacts in respect to conservation values, radiation risks, transportation risks, tailings management, and water abstraction. On 12 November 2010 the then Minister for Environment determined to dismiss the appeals, noting that the EPA had set the public comment period at 14 weeks, consistent with her earlier appeal determinations in respect to the level of assessment set for uranium projects at Yeelirrie, Wiluna and Lake Maitland in which she determined that the issues raised could be adequately considered through an ERMP level of assessment with an extended public comment period.

On 15 December 2011 the DMP granted clearing permit 4626 to Cameco Australia Pty Ltd for the clearing of up to 22 ha of native vegetation on Mining Leases 45/264, 45/266, 45/267 and 45/420, Exploration Licences 45/1772, 45/1773 and 45/1774 and Prospecting Licences 45/2632, 45/2633, 45/2634, 45/2635, 45/2636, 45/2637, 45/2638, 45/2639, 45/2640, 45/2641, 45/2642 and 45/2643 for the purposes of mineral exploration, associated infrastructure and gravel pit associated with the

Kintyre Uranium Project, subject to conditions including minimising clearing, weed control, flora management, fauna management, and recording and reporting.

On 6 June 2013 the DMP granted clearing permit CPS 5557 to Cameco Australia Pty Ltd for the clearing of up to 52 ha of native vegetation on Mining Leases 45/264, 45/266, 45/267, 45/420, 45/693, 45/694, 45/695, 45/696 and 45/1217 and Exploration Licences 45/1773 and 45/1774 for the purposes of mineral exploration and borrow pits associated with the Kintyre Uranium Project, subject to conditions including minimising clearing, weed control, flora and riparian vegetation management, fauna management, and recording and reporting. One appeal was received (C017/13) in objection to the grant of clearing permit, on the basis that the application area is biologically diverse, contains significant and priority taxa and watercourses, and is in close proximity to a national park, and the location of the proposed clearing within the footprint is vague. The Minister for Environment determined to dismiss the appeal.

On 12 September 2013 the DMP granted clearing permit CPS 5684 to Cameco Australia Pty Ltd for the clearing of up to 35 ha of native vegetation on Exploration Licences 45/2690 and 45/2691 for the purpose of mineral exploration associated with the Kintyre Rocks Uranium Project, subject to conditions including fauna management, flora and riparian vegetation management, weed control, and recording and reporting.

SUPPLEMENTARY ADVICE

This Supplementary Advice is provided following the request from the Office of the Minister for Environment for additional information on the role of other decision making authorities in the management of certain environmental issues raised in appeals.

DUST MONITORING AND BUSH TUCKER

In its report, the Environmental Protection Authority (EPA) advised that the risks of radiological impacts from the consumption of bush tucker and to non human biota would be low. However, the EPA noted that this is an evolving area of science, and recommended that assessments of impacts from consumption of bush tucker during operations and post-closure should be periodically reported to the Department of Mines and Petroleum (DMP) to assess impacts to the public around the mine for post-closure estimates of doses. The EPA noted that this could occur in line with the DMP's current reporting requirements in mine closure plans, and that the DMP should require the proponent to report on these aspects of the proposal using dust and other monitoring data (p 29 Report 1522).

The EPA also advised that the Radiological Council can adequately monitor and manage bush tucker under the radiation management plan (p. 19 Report 1522) and provided advice to the Radiological Council 'that bush tucker ingestion doses need to be updated in the radiation management plan prior to mining'(p 29 Report 1522).

The Office of the EPA has provided additional details of advice received from the DMP and Radiological Council in respect to dust monitoring and bush tucker. By way of summary, the DMP advised the Office of the EPA that the proponent's commitments are in accordance with current best practice and they can be adequately managed through the DMP's mine closure processes. The DMP also advised that the assessments and modelling used by the proponent in respect to radiological assessments meets international best practice.

The Radiological Council advised the Office of the EPA that risks associated with bush tucker would be considered in the ingestion pathways for the dose assessment, and potential impacts to non-human biota are discussed in the proponent's environmental objectives. The Radiological Council advised that both of these areas are expected to be in the Radiation Management Plan and can be adequately monitored and managed under this plan.

Recommendation

Subject to the Minister's decision on the appeals, consultation with decision making authorities under section 45(1) of the *Environmental Protection Act 1986* (EP Act) includes the opportunity for agencies (including the DMP and Radiological Council) to provide current advice on the management of risks associated with dust monitoring and consumption of bush tucker. It is recommended therefore that these agencies be consulted in respect to the EPA's recommendations above in respect to these factors.

TAILING MANAGEMENT FACILITY (TMF) LINER

On the advice of the proponent, the management of leachate in the TMF is only material for the period of operations and the decade or so following closure. Thereafter the tailings will remain effectively dry (given the design functionality of the closure cover) and hence a sound post-closure environmental outcome is not dependent on the very long term integrity of the HDPE liners.

The EPA advised that the DMP would 'ensure that there is a commitment to monitor the TMF for seepage and radon release' under the mine closure plan (p. 15 Report 1522).

The DMP's advice to the Office of the EPA does not specifically address the TMF, however the EPA has indicated that post-closure issues can be adequately managed by the DMP. It is understood that the TMF will be subject to works approval and licencing requirements under Part V of the EP Act, and therefore it is likely the construction and operational aspects of the TMF can be managed by the Department of Environment Regulation (DER).

Recommendation

Subject to the Minister's decision on the appeals, consultation with decision making authorities under section 45(1) of the EP Act includes the opportunity for agencies (including the DMP and DER) to provide current advice on the management of risks associated with the operational and post-closure phases of the TMF. It is recommended therefore that these agencies be consulted in respect to the EPA's recommendations above in respect to the TMF.

FLOOD PROTECTION WORKS

The EPA's report considered that the proposal can be managed to meet its environmental objectives in respect to inland water quality having regard to (among other things):

- the proponent's commitment to develop a flood protection embankment to meet a probable maximum flood event plus one metre; and
- the proponent's proposed groundwater monitoring network.

The DMP advised the Office of the EPA that the proponent intends to implement the geotechnical recommendations made by DMP following the review of the ERMP. The DMP further advised that the final designs of all geotechnical structures and suitability for intended purpose will be assessed when the Project Management Plan and Mining Proposal are submitted to DMP for approval.

While the OEPA did not specifically ask the DMP whether it is able to regulate this aspect of the proposal, the DMP's response suggests that these works can be the subject of approval through the mining proposal and project management plan.

Recommendation

The advice of the DMP suggests the flood protection commitments given by the proponent can be made the subject of conditions under legislation administered by the DMP. This can be confirmed by the DMP through the consultation process under section 45(1) of the EP Act, as required.

POST-CLOSURE MANAGEMENT

Appellants have contended that any approval of the proposal should meet or exceed the requirements applying to the Ranger Uranium Mine in the Northern Territory, consistent with a motion passed in the Legislative Council (and supported by government members) in May 2012. This motion included reference to a requirement to ensure long term risks of uranium proposals are considered over a period of 10,000 years.

The EPA stated that the DMP can regulate closure aspects of the proposal (p. 28 Report 1522). It also advised the DMP that a landform evolution model should be used to assess the trajectory of the landform evolution rather than a specific timescale, and that this should be reflected in the mine closure plan approved by the DMP on advice of the Supervising Scientist (p. 16 Report 1522).

The position of the EPA is essentially that a better environmental outcome is achieved through application of a landform evolution model rather than applying a specific time scale. Given the object of the Legislative Council motion is to provide a decision making process in

Western Australia for uranium mines that ensures environmental outcomes meet or exceed standards in other jurisdictions, the application of a condition requiring assessment of risks over a 10,000 year period may no longer reflect best practice.

Recommendation

The consultation process under section 45(1) of the EP Act provides an opportunity for decision making authorities to have input into the issues connected with the long term management of the site post-closure.

SUMMARY

Overall, and noting that the EPA has through Report 1522 identified a number of matters that it has indicated can be managed appropriately by other agencies, it is considered appropriate for these matters to be confirmed with relevant agencies through any consultation commenced under section 45 of the EP Act.

Kelly Faulkner
APPEALS CONVENOR