Cameco

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12 November 2014

Danielle Griffiths
Senior Environmental Officer
Environmental Protection Authority
Locked Bag 10
East Perth WA 6892

Dear Danielle,

Yeelirrie Uranium Project – Termination and new Referral

Please find enclosed the following,

1. A letter to the EPA requesting termination of the Yeelirrie Assessment (Assessment No. 1788)

2. A completed referral form "Referral of a proposal by a proponent" for the Yeelirrie Uranium Project.

3. A thumbdrive containing electronic copies of the above correspondence and various baseline study reports referenced in the Referral.

Based on our earlier conversations, I understand that the termination and new referral will be mentioned through the OEPA twitter feed and will therefore become public knowledge. Would you please discuss this process with me before this occurs so we advise our key stakeholders before the event.

Please don't hesitate to contact me if you require any further information.

Yours sincerely,

Simon Williamson
Environmental Manager

Cameco

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12 November 2014

Dr Paul Vogel
Chairman
Environmental Protection Authority
Locked Bag 10
East Perth WA 6892

Dear Paul,

Request to Terminate Assessment No. 1788 – Yeelirrie Uranium Project

The Yeelirrie Uranium Project (the Project) was referred to the Western Australian Environmental Protection Authority (EPA) by BHP Billiton Ltd (BHPB) in May 2009.

An Environmental Scoping Document was subsequently submitted and ultimately approved by the EPA in May 2010.

In 2012, Cameco Australia Ltd purchased the Project from BHPB, and now proposes to advance the Project approvals.

Cameco requests that the EPA terminate the existing approval for the two reasons outlined below.

Reasons for termination

Increase in the rate of mining and processing
BHPB had proposed an ore processing production rate of 1.2 Mtpa, which resulted in a mine life of approximately 30 years. Cameco does not consider this production rate to be efficient or economically viable and is proposing to increase the ore processing production rate to 2.4 Mtpa. At the higher production rate the life of the mine is estimated to be approximately 17 years. The higher ore processing rate will result in higher water demand; more ore produced and increased rates of transport. These levels will exceed the limits of the key characteristics proposed by BHPB in the Scoping Document.

Assessment under the 2012 Administrative Amendments
The original referral predates the 2012 Administrative Amendments to the Environmental Protection Act and as a result the Project would be assessed subject to the old procedures as an Environmental Review and Management Plan. Based on our conversation, Cameco agrees there are benefits to having the Project assessed under the new procedures and subsequently Cameco requests that the current Assessment (assessment number 1799) be terminated.

Cameco will lodge a new referral for the Project concurrently with the termination for consideration of the EPA.

Would you please consider the request and provide advice at your earliest convenience. Please contact the undersigned if you required any additional information.

Yours sincerely,

Simon Williamson
Environmental Manager

GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

EPA REFERRAL FORM PROPONENT

Referral of a Proposal by the Proponent to the Environmental Protection Authority under Section 38(1) of the *Environmental Protection Act 1986*.

PURPOSE OF THIS FORM

Section 38(1) of the *Environmental Protection Act 1986* (EP Act) provides that where a development proposal is likely to have a significant effect on the environment, a proponent may refer the proposal to the Environmental Protection Authority (EPA) for a decision on whether or not it requires assessment under the EP Act. This form sets out the information requirements for the referral of a proposal by a proponent.

Proponents are encouraged to familiarise themselves with the EPA's *General Guide on Referral of Proposals* [see Environmental Impact Assessment/Referral of Proposals and Schemes] before completing this form.

A referral under section 38(1) of the EP Act by a proponent to the EPA must be made on this form. A request to the EPA for a declaration under section 39B (derived proposal) must be made on this form. This form will be treated as a referral provided all information required by Part A has been included and all information requested by Part B has been provided to the extent that it is pertinent to the proposal being referred. Referral documents are to be submitted in two formats – hard copy and electronic copy. The electronic copy of the referral will be provided for public comment for a period of 7 days, prior to the EPA making its decision on whether or not to assess the proposal.

CHECKLIST

Before you submit this form, please check that you have:

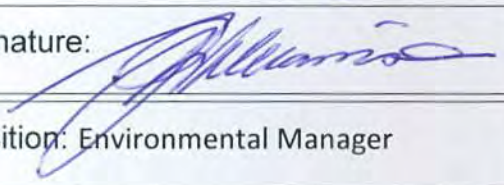
	Yes	No
Completed all the questions in Part A (essential).	✓	
Completed all applicable questions in Part B.	✓	
Included Attachment 1 – location maps.	✓	
Included Attachment 2 – additional document(s) the proponent wishes to provide (if applicable).	✓	
Included Attachment 3 – confidential information (if applicable). N/A		X
Enclosed an electronic copy of all referral information, including spatial data and contextual mapping but excluding confidential information.	✓	

Following a review of the information presented in this form, please consider the following question (a response is optional).

Do you consider the proposal requires formal environmental impact assessment? ☒ Yes ☐ No ☐ Not sure
If yes, what level of assessment? ☐ Assessment on Proponent Information ☒ Public Environmental Review

PROPONENT DECLARATION (to be completed by the proponent)

I, Simon John Williamson, declare that I am authorised on behalf of Cameco Australia Pty Ltd (being the person responsible for the proposal) to submit this form and further declare that the information contained in this form is true and not misleading.

Signature: 	Name: Simon Williamson
Position: Environmental Manager	Company: Cameco Australia Pty Ltd
Date: 12 November 2014	

PART A - PROPONENT AND PROPOSAL INFORMATION

(All fields of Part A must be completed for this document to be treated as a referral)

1 PROPONENT AND PROPOSAL INFORMATION

1.1 Proponent

Name	Cameco Australia Ltd
Joint Venture parties (if applicable)	N/A
Australian Company Number (if applicable)	001 513 088
Postal Address (where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State)	Physical address: Cameco Australia Pty Ltd 24 Hasler Rd Osborne Park WA 6017 Postal address for all correspondence: Environmental Manager Cameco Australia Pty Ltd PO Box 748 Osborne Park BC WA 6916
Key proponent contact for the proposal: • name • address • phone • email	Mr Simon Williamson Environmental Manager Cameco Australia Pty Ltd Phone: (08) 9318 6600 / 0417 919 235 Email: Simon_Williamson@Cameco.com
Consultant for the proposal (if applicable): • name • address • phone • email	N/A

1.2 Proposal

Title	Yeelirrie Uranium Project
Description	See below

The proposal is for the mining and processing of uranium ore at Yeelirrie, in the Northern Goldfields region of Western Australia, approximately 420 km north of Kalgoorlie-Boulder, 65 km west of Mount Keith and 70 km south-west of Wiluna.

The proposed development would produce up to 7,500 tonnes per annum (tpa) of uranium peroxide (UO4.2H2O), more commonly referred to as uranium oxide concentrate (UOC), through the development and operation of an open pit mine and on-site metallurgical plant. This production volume would diminish toward the end of the life of the proposed development.

The open pit mine would be about 9 km long, up to 1.5 km wide and about 10 m deep. Up to 14

million tonnes (Mt) of overburden and ore would be mined annually during the mining pre-production pre-strip phase, with an average extraction rate of around 8 Mtpa. Ore would be stockpiled and subsequently treated in the proposed metallurgical plant. The mined material would be stockpiled near the open pit before being processed within the metallurgical plant.

Ore would be processed via an alkali tank leaching process, followed by direct precipitation, to produce Uranium Ore Concentrate. All tailings generated would be returned to the tailings storage facility (TSF) in the open pit.

The proposed development would necessitate the construction and operation of infrastructure required to support mining and processing, including the supply of water and electricity, workforce accommodation and infrastructure to transport the product. The main components of the infrastructure are:

- an on-site quarry to provide raw construction materials
- a pit dewatering system consisting of trenches, sump drains and pumps to lower the groundwater level within the pit to allow safe access to the ore body and to provide a primary process water supply
- a water supply wellfield and associated infrastructure to supplement the water obtained from pit dewatering
- a surface water diversion system to exclude water from the mining area, the tailings and the stockpiled ore
- an electricity supply network powered by a series of on-site diesel (or gas fired) generators. A new gas pipeline extension of approximately 50 km length would be required for the gas fired generator option with a connection to the Wiluna to Kalgoorlie gas pipeline.
- buildings, including workshops, offices and warehouses
- an accommodation village catering for a peak on-site workforce of up to 1,200
- associated infrastructure including potable water and sewage treatment plants.

UOC would be trucked to the Port of Adelaide for export.

Maps (Figures 1 and 2) showing the location of the Proposal are provided at Attachment 1.

The Key characteristics table for the Proposal and Figure 3 showing the Development Envelope are included in Attachment 2.

Extent (area) of proposed ground disturbance.	2090 hectares
Timeframe in which the activity or development is proposed to occur (including start and finish dates where applicable).	Cameco is committed to complete and submit development proposals by the 30th June, 2018 in line with the requirements of the State Agreement and the project development is currently anticipated to commence after approval (by the Minister) of the proposals.
Details of any staging of the proposal.	The Project would be staged to prepare for mining. Initially the infrastructure for dewatering would be established to dewater the first of the mining pits. At

	the same time, construction of the metallurgical plant would commence. Once dewatering was completed, mining and stockpiling of ore would commence. Mining would continue until a pit cell was completed and prepared for the placement of tailings. Processing of ore would then commence.
Is the proposal a strategic proposal?	No
Is the proponent requesting a declaration that the proposal is a derived proposal? If so, provide the following information on the strategic assessment within which the referred proposal was identified: • title of the strategic assessment; and • Ministerial Statement number.	No
Please indicate whether, and in what way, the proposal is related to other proposals in the region.	N/A
Does the proponent own the land on which the proposal is to be established? If not, what other arrangements have been established to access the land?	Yes
What is the current land use on the property, and the extent (area in hectares) of the property?	The Project development envelope occurs on Yeelirrie pastoral lease, which is held by Cameco. The area of the lease is 375,143 Ha. Currently the pastoral lease is destocked and not operated for pastoral activity.

1.3 Location

Name of the Shire in which the proposal is located.	Shire of Wiluna
For urban areas: • street address; • lot number; • suburb; and • nearest road intersection.	N/A
For remote localities: • nearest town; and • distance and direction from that town to the proposal site.	The Project is located approximately 70 km south-west of Wiluna and 65 km west of Mount Keith Mine.
Electronic copy of spatial data - GIS or CAD, geo-referenced and conforming to the following parameters: • GIS: polygons representing all activities and named; • CAD: simple closed polygons representing all activities and named; • datum: GDA94; • projection: Geographic (latitude/longitude) or Map Grid of Australia (MGA); • format: Arcview shapefile, Arcinfo coverages, Microstation or AutoCAD.	Attached

1.4 Confidential Information

Does the proponent wish to request the EPA to allow any part of the referral information to be treated as confidential?	No
If yes, is confidential information attached as a separate document in hard copy?	N/A

1.5 Government Approvals

Is rezoning of any land required before the proposal can be implemented? If yes, please provide details.		No	
Is approval required from any Commonwealth or State Government agency or Local Authority for any part of the proposal? If yes, please complete the table below.		Yes	
Agency/Authority	Approval required	Application lodged Yes / No	Agency/Local Authority contact(s) for proposal
DER	Part V of *Environmental Protection Act 1986* • Works Approval • Licence to Operate	N	

DMP	*Mining Act 1978* and Regulations 1981 • Mining Leases • Mining Proposal • Approval of closure and rehabilitation plans Mines Safety and Inspection Act 1994 and Regulations 1995 • Project Management Plan • Radiation Management Plan • Radioactive Waste Management Plan • Transport Management Plan (for transport of uranium oxide) Dangerous Goods Safety Act 2004 Dangerous Goods Safety (Storage and Handling) Regulations 2007 Dangerous Goods Safety (Security Risk Substances) Regulations 2007 Dangerous Goods Safety (Explosives) Regulations 2007 Dangerous Goods Safety (Non-Explosives) Regulations 2007 • Dangerous Goods Licences	Mining Leases are granted pursuant to a State Agreement Act. N N	
Radiological Council	*Radiation Safety Act 1975* and Radiation Safety (Qualifications) Regulations (1980) • Radiation Management Plan • Radioactive Waste Management Plan • Approval of a nominated Radiation Safety Officer to be holder of licence for mining and milling of radioactive ores • Registration of owners of premises • Approval of closure and site rehabilitation plans Radiation Safety (General) Regulations (1983) • Licence of premises Radiation Safety (Transport of Radioactive Substances) Regulations 2002 • Licence to transport radioactive substances • Radiation Protection Programme for transport	N	
Department of Aboriginal Affairs (DAA)	Aboriginal Heritage Act 1972 • Ministerial Consent under Section 18 (if required)	N	
Department of Water (DoW)	Rights in Water and Irrigation Act 1914	N	

	• Groundwater licences for construction of wells and abstraction of groundwater		
DPaW	Wildlife Conservation Act 1950 • Flora and fauna licensing	N	
Shire of Wiluna	Local Government (Miscellaneous Provisions) Act 1960 and Building Regulations 1989 • Building Permits Planning and Development Act 2005 • Planning and Development Approval *Health Act 1911* and Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 • Notice of Completion	N	
Department of Planning (DoP)	Planning and Development Act 2005 • Planning and Development Approval	N	
Department of Health (DoH)	*Health Act 1911* and Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974 • Sewage treatment permit	N	
DoE	Environment Protection and Biodiversity Conservation Act 1999 • Formal environmental approval • Approval of closure and site rehabilitation plans	N	
Australian Radiation Protection and Nuclear Safety Agency (ARPANSA)	Australian Radiation Protection and Nuclear Safety Act 1998 • Facility licence	N	
Australian Safeguards and Non-Proliferations Office (ASNO)	Nuclear Non-Proliferation (Safeguards) Act 1987 and Nuclear Safeguards (Producers of Uranium Concentrates) Charge Act 1993 • Permit to possess nuclear material (Section 13) • Permit to establish a uranium mining facility	N	
Department of Resources Energy and Tourism (DRET)	Regulation 9 of Customs (Prohibited Exports) Regulations under the *Customs Act 1901* • Permit to export uranium ore concentrates	N	

PART B - ENVIRONMENTAL IMPACTS AND PROPOSED MANAGEMENT

2. ENVIRONMENTAL IMPACTS

Describe the impacts of the proposal on the following elements of the environment, by answering the questions contained in Sections 2.1-2.11:

2.1 flora and vegetation;

2.2 fauna;

2.3 rivers, creeks, wetlands and estuaries;

2.4 significant areas and/ or land features;

2.5 coastal zone areas;

2.6 marine areas and biota;

2.7 water supply and drainage catchments;

2.8 pollution;

2.9 greenhouse gas emissions;

2.10 contamination; and

2.11 social surroundings.

These features should be shown on the site plan, where appropriate.

For all information, please indicate:

(a) the source of the information; and

(b) the currency of the information.

2.1 Flora and Vegetation

2.1.1 Do you propose to clear any native flora and vegetation as a part of this proposal?

[A proposal to clear native vegetation may require a clearing permit under Part V of the EP Act (Environmental Protection (Clearing of Native Vegetation) Regulations 2004)]. Please contact the Department of Environment and Conservation (DEC) for more information.

(please tick) ☒ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section

2.1.2 How much vegetation are you proposing to clear (in hectares)?

Implementation of the proposal will require clearing of approximately 2090 hectares.

2.1.3 Have you submitted an application to clear native vegetation to the DEC (unless you are exempt from such a requirement)?

☐ Yes ☒ No **If yes**, on what date and to which office was the application submitted of the DEC?

2.1.4 Are you aware of any recent flora surveys carried out over the area to be disturbed by this proposal?

×Yes	☐ No	**If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s). **If no**, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

Western Botanical Consultants, (2011) *Flora and Vegetation Survey of the Yeelirrie Project Area - Baseline Report.* Report prepared by Rebecca Graham, Geoff Cockerton, Dr. Carolyn Ringrose, Cheyne Jowett, Amy Douglas, Lewis Trotter, Bridget Watkins, Daniel Brassington, Jessie-Leigh Brown, Simon Colwill and Sophie Fox of Western Botanical for BHP Billiton Ltd. February 2011.

2.1.5 Has a search of DEC records for known occurrences of rare or priority flora or threatened ecological communities been conducted for the site?

× Yes	☐ No	If you are proposing to clear native vegetation for any part of your proposal, a search of DEC records of known occurrences of rare or priority flora and threatened ecological communities will be required. Please contact DEC for more information.

A search of DPaW records was conducted as part of the Western Botanical (2011) flora and vegetation survey.

2.1.6 Are there any known occurrences of rare or priority flora or threatened ecological communities on the site?

× Yes	☐ No	**If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

From the desktop study:

No species of Threatened Flora, as defined under Commonwealth legislation (Environment Protection and Biodiversity Conservation (EPBC) Act 1999), were known to occur in or within or in the vicinity of study area 1;

- no Declared Rare Flora (DRF) as defined under the Western Australian Wildlife Conservation (WC) Act 1950 were known to occur in or within the vicinity of study area 1;
- twenty-six Priority Flora taxa listed by the DEC were known to occur in the vicinity of study area 1; these include five 'P1', seventeen 'P3' and four 'P4' species; and
- five Priority Flora species were identified in the project footprint area; these include two P1 species and three P3 species.

During the field surveys, across the total study area, Western Botanical recorded:

- no species of Threatened Flora;
- no Declared Rare Flora (DRF);
- Four Priority Flora 'P1'species;
- Nine Priority Flora 'P3'species; and
- Two Priority Flora 'P4'species.

The species are;

'P1'species

- *Atriplex sp.* Yeelirrie Station (L.Trotter and A. Douglas LCH 25025)
- *Rhagodia sp.* Yeelirrie Station (K.A.Shepherd et al. KS1396).
- *Thryptomene sp.* Leinster (B.J. Lepschi & L.A. Craven 4362)
- *Neurachne lanigera,*

'P3'species

- *Euryomyrtus inflate*
- *Baeckea sp.* Sandstone (C.A. Gardner s.n. 26 Oct. 1963) Bossiaea eremaea
- *Eremophila arachnoides subsp.* Arachnoides
- *Sauropus ramosissimus,*
- *Calytrix erosipetala,*
- *Calytrix uncinata,*
- *Scaevola spinescens terete* leaf form, and
- *Templetonia incrassata.*

'P4'species

- *Olearia arida*
- *Comesperma viscidulum*

Since the survey was completed, the status of the species *Atriplex sp.* Yeelirrie Station has been elevated to DRF.

Cameco has commenced discussions with Parks and Wildlife regarding taxonomic and preservation issues related to the *Atriplex* sp.

Cameco is also conducting a review of the report completed in 2011 and will update it to, a) the surveys and report meet current guidelines and expectations, and b) to review and amend the rare and priority listing ratings that may have changed since 2011, and c) to include the additional work conducted on the Atriplex since the report was written.

2.1.7 If located within the Perth Metropolitan Region, is the proposed development within or adjacent to a listed Bush Forever Site? (You will need to contact the Bush Forever Office, at the Department for Planning and Infrastructure)

☐ Yes ☒ No **If yes**, please indicate which Bush Forever Site is affected (site number and name of site where appropriate).

2.1.8 What is the condition of the vegetation at the site?

Although the Murchison and North-eastern Goldfields regions are largely uncleared, the ecological integrity of these regions has been degraded by the combined effects of grazing by sheep, cattle, goats, rabbits and elevated populations of kangaroos (Van Vreeswyk and Godden, (1998).

The local study area containing the Yeelirrie uranium deposit has been subject to long-term historical pastoral grazing and various exploration activities over the last forty years, which resulted in some land clearing. The majority of the vegetation within the local study area is in good condition with the exception of the historical trial mining and rehabilitation areas in the project footprint, which are in a 'degraded' condition.

Vegetation condition of the study area also reflects seasonal conditions.

2.2 Fauna

2.2.1 Do you expect that any fauna or fauna habitat will be impacted by the proposal?

(please tick) ☒ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.2.2 Describe the nature and extent of the expected impact.

The implementation of the proposal will result in clearing an area of approximately 2090 hectares which contains native vegetation that provides habitat for a variety of fauna.

2.2.3 Are you aware of any recent fauna surveys carried out over the area to be disturbed by this proposal?

☒ Yes ☐ No **If yes**, please attach a copy of any related survey reports and provide the date and name of persons / companies involved in the survey(s).

If no, please do not arrange to have any biological surveys conducted prior to consulting with the DEC.

Bamford Consulting Ecologists. February 2011. Vertebrate Fauna Assessment, Yeelirrie Project, Baseline Report. Report prepared by Mike Bamford, Natalia Huang and Jeff Turpin of Bamford Consulting Ecologists for BHP Billiton Ltd. February 2011.

Ecologia Environment Consultants. February 2011. Short Range Endemic Invertebrate Baseline Survey. Survey and report completed by Lazaro Roque-Albelo, Catherine Hall, Nicki Thompson, Sean White and Nicholas Dight of Ecologia Environment Consultants for BHP Billiton Ltd. February 2011.

Bamford Consulting Ecologists. March 2011. Fauna Assessment of the Yeelirrie Fauna Study Area - Impact Assessment Report. Report prepared by Mike Bamford, Natalia Huang and Jeff Turpin of Bamford Consulting Ecologists for BHP Billiton Ltd. March 2011.

Ecologia Environment Consultants. February 2011. Memo – Predicted Impacts to Short Range Endemic Invertebrate Fauna. Memo prepared by Dr. Lazaro Roque-Albelo of Ecologia Environment Consultants for BHP Billiton Ltd. February 2011.

Subterranean Ecology. March 2011. Yeelirrie Subterranean Fauna Survey. Report prepared by Subterranean Ecology Consultants for BHP Billiton Ltd for the Yeelirrie Development Company Pty Ltd.

2.2.4 Has a search of DEC records for known occurrences of Specially Protected (threatened) fauna been conducted for the site?

☒ Yes ☐ No (please tick)

2.2.5 Are there any known occurrences of Specially Protected (threatened) fauna on the site?

☒ Yes ☐ No **If yes**, please indicate which species or communities are involved and provide copies of any correspondence with DEC regarding these matters.

The vertebrate fauna assemblage

The desktop review identified 292 vertebrate fauna species that may be expected to occur in the study area (10 frog, 88 reptile, 155 bird, 31 native mammal and eight introduced mammal species). The BCE field surveys in 2009 to 2010 recorded a total of 196 of these fauna species. This comprised four frog, 49 reptile, 82 bird, 21 native mammal and four introduced mammal species.

Conservation significant species

Thirty-five species of conservation significance are considered likely to occur in the study area. Of these, 20 are of high significance (Conservation Significance [CS] Level 1), being listed under legislation; seven are of moderate conservation significance (Conservation Significance Level 2), being listed as priority species by the Department of Environment and Conservation (DEC); and eight are of local significance (Conservation Significance Level 3), because they have restricted distributions or are listed as declining species in the region.

Eight conservation significant fauna species were recorded in the areas assessed during BCE's field surveys:

- Malleefowl (CS1)
- Peregrine Falcon (CS1)
- Rainbow Bee-eater (CS1)
- Black-flanked Rock-Wallaby (CS1)
- the Bush Stone-curlew (CS2)
- Australian Bustard (CS2)
- Brush-tailed Mulgara (CS2), and
- Greater Long-eared Bat (CS2).

An additional five conservation significant species have been recorded previously at Yeelirrie including the Eastern Great Egret (CS1), Sharp-tailed Sandpiper (CS1), Major Mitchell's Cockatoo (CS1), Fork-tailed Swift (CS1) and Square-tailed Kite (CS3).

Even among species that were recorded, the significance of these findings are considered to be minor in most cases because the species is considered to be an irregular visitor (16 species), a resident but very widespread (e.g. Peregrine Falcon, Australian Bustard, Square-

tailed Kite) or there is little, if any, habitat actually within the study area (e.g. Great Desert Skink, the legless lizard *Aprasia picturata*, Long-tailed Dunnart, Kultarr).

For six significant species, the study area may be of moderate importance. These are:

- Malleefowl - population known in region and considered to be significant by Benshemesh et al. (2008); however extensive surveys conducted by the Malleefowl Preservation Group over many years have not located a nest within the impact areas;
- Black-flanked Rock-Wallaby - population known in region;
- Slender-billed Thornbill - may be present with suitable habitat within the study area but only a small proportion in impact areas;
- Brush-tailed Mulgara – large local population found by BCE
- Bush Stone-curlew – local population found by BCE
- Greater Long-eared Bat – species found in area by BCE and suitable roosting habitat (tree hollows) within and close to the resource.

Most of the recorded significant species were found in low numbers and/or outside the resource area. The Brush-tailed Mulgara, however, was abundant in areas of open Mixed Shrubland on Spinifex sandplain across the Project area, with low densities recorded in some parts of the resource area. The Malleefowl population on Yeelirrie Station is significant (Benshemesh *et al.* 2008), and is likely to be confined to Acacia shrublands on sandplain in higher landscapes. One *inactive* mound was found by BCE approximately two kilometres north of the centre of the resource area and other mounds were found by the Malleefowl Preservation Group well to the north and south of the Project area, the closest being approximately 15 km from the centre of the resource area.

The invertebrate fauna assemblage

A total of 42 species were collected during the baseline SRE survey, of which three species were confirmed SREs (*Idiosoma* sp., *Pseudolaureola* sp., and Platyarthridae/Barthytropidae) and 13 were considered potential SREs (*Aganippe* sp., *Aname* 'MYG170', *Aname* 'MYG212', Barychelidae, Cheridiidae, *Cubaris* sp. 1, *Cubaris* sp. 2, Geophilida, *Kwonkan* 'MYG171', *Kwonkan* 'MYG172', *Kwonkan* 'MYG210', *Kwonkan* 'MYG211' and *Urodacus* 'yeelirrie'). No "Specially Protected (threatened)" fauna were recorded.

A habitat analysis showed no statistically significant difference between SRE species diversity and habitat type inside and outside the project footprint. SRE species distribution depends on micro-habitats ('island' habitats) rather than broadscale habitat types; and all of the habitat types extend beyond the proposed project footprint indicating a potential for all species to be found outside the project footprint.

Subterranean Fauna

A Subterranean Fauna Survey of the Yeelirrie Project Area was undertaken from March 2009 to September 2010.

Sampling effort and survey coverage exceeded the requirements outlined in EPA Guidance Statements no. 54 (2003) and 54a (2007) for baseline assessment of subterranean fauna.

A total of 641 stygofauna samples and 461 troglofauna samples were collected during the Survey from 259 bores throughout the Study Area. This sampling effort represents one of the most intensive subterranean fauna surveys undertaken in the Yilgarn region to date and

is possibly responsible for the comparably high number of species recorded in the Yilgarn region.

Forty-six stygofauna species and nine amphibious subterranean species were collected from the Study Area, comprising nine invertebrate orders. Identifications using morphology and genetic analyses confirmed rich stygofauna assemblages, including dytiscid diving beetles (three species), annelid worms (four species), amphipods (one species), ostracods (one species), bathynellaceans (eight species), and a high diversity of copepods (30 species from six families). Amphibious subterranean fauna comprised seven species of enchytraeid worms and two species of philosciid isopods (amphibious species are hereafter included as „stygofauna"). Yeelirrie has recorded the highest number of stygofauna species from any comparable area in the Yilgarn region to date and this may be a result of the significant amount of sampling completed.

Forty-five troglofauna species representing 12 invertebrate orders were detected. Identifications using morphology and genetic analyses revealed a diverse assemblage of pseudoscorpions (eight species), spiders (four species), palpigrades (one species), isopods (10 species), myriapods (15 species), diplurans (three species), hemipterans (two species) and silverfish (two species). Yeelirrie has recorded the richest troglofauna assemblages currently known from any comparable area in the Yilgarn region and this may be a result of the significant amount of sampling completed.

Cameco is currently reviewing the impact on subterranean fauna from mining, dewatering and groundwater production.

2.3 Rivers, Creeks, Wetlands and Estuaries

2.3.1 Will the development occur within 200 metres of a river, creek, wetland or estuary?

(please tick) ☐ Yes **If yes**, complete the rest of this section.

× No **If no**, go to the next section.

2.3.2 Will the development result in the clearing of vegetation within the 200 metre zone?

☐ Yes × No **If yes**, please describe the extent of the expected impact.

2.3.3 Will the development result in the filling or excavation of a river, creek, wetland or estuary?

☐ Yes × No **If yes**, please describe the extent of the expected impact.

2.3.4 Will the development result in the impoundment of a river, creek, wetland or estuary?

☐ Yes × No **If yes**, please describe the extent of the expected impact.

2.3.5 Will the development result in draining to a river, creek, wetland or estuary?

☐ Yes ☒ No **If yes**, please describe the extent of the expected impact.

2.3.6 Are you aware if the proposal will impact on a river, creek, wetland or estuary (or its buffer) within one of the following categories? (please tick)

Conservation Category Wetland	☐ Yes	☒ No	☐ Unsure
Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998	☐ Yes	☒ No	☐ Unsure
Perth's Bush Forever site	☐ Yes	☒ No	☐ Unsure
Environmental Protection (Swan & Canning Rivers) Policy 1998	☐ Yes	☒ No	☐ Unsure
The management area as defined in s4(1) of the *Swan River Trust Act 1988*	☐ Yes	☒ No	☐ Unsure
Which is subject to an international agreement, because of the importance of the wetland for waterbirds and waterbird habitats (e.g. Ramsar, JAMBA, CAMBA)	☐ Yes	☒ No	☐ Unsure

2.4 Significant Areas and/ or Land Features

2.4.1 Is the proposed development located within or adjacent to an existing or proposed National Park or Nature Reserve?

☐ Yes ☒ No **If yes**, please provide details.

2.4.2 Are you aware of any Environmentally Sensitive Areas (as declared by the Minister under section 51B of the EP Act) that will be impacted by the proposed development?

☐ Yes ☒ No **If yes**, please provide details.

2.4.3 Are you aware of any significant natural land features (e.g. caves, ranges etc) that will be impacted by the proposed development?

☐ Yes ☒ No **If yes**, please provide details.

2.5 Coastal Zone Areas (Coastal Dunes and Beaches)

2.5.1 Will the development occur within 300metres of a coastal area?

(please tick) ☐ Yes **If yes**, complete the rest of this section.

☒ No **If no**, go to the next section.

2.5.2 What is the expected setback of the development from the high tide level and from the primary dune?

2.5.3 Will the development impact on coastal areas with significant landforms including beach ridge plain, cuspate headland, coastal dunes or karst?

☐ Yes ☒ No **If yes**, please describe the extent of the expected impact.

2.5.4 Is the development likely to impact on mangroves?

☐ Yes ☒ No **If yes**, please describe the extent of the expected impact.

2.6 Marine Areas and Biota

2.6.1 Is the development likely to impact on an area of sensitive benthic communities, such as seagrasses, coral reefs or mangroves?

☐ Yes ☒ No **If yes**, please describe the extent of the expected impact.

2.6.2 Is the development likely to impact on marine conservation reserves or areas recommended for reservation (as described in *A Representative Marine Reserve System for Western Australia*, CALM, 1994)?

☐ Yes ☒ No **If yes**, please describe the extent of the expected impact.

2.6.3 Is the development likely to impact on marine areas used extensively for recreation or for commercial fishing activities?

☐ Yes ☒ No **If yes**, please describe the extent of the expected impact, and provide any written advice from relevant agencies (e.g. Fisheries WA).

2.7 Water Supply and Drainage Catchments

2.7.1 Are you in a proclaimed or proposed groundwater or surface water protection area?

(You may need to contact the Department of Water (DoW) for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☐ Yes ☒ No **If yes**, please describe what category of area.

2.7.2 Are you in an existing or proposed Underground Water Supply and Pollution Control area?

(You may need to contact the DoW for more information on the requirements for your location, including the requirement for licences for water abstraction. Also, refer to the DoW website)

☐ Yes ☒ No **If yes**, please describe what category of area.

2.7.3 Are you in a Public Drinking Water Supply Area (PDWSA)?

(You may need to contact the DoW for more information or refer to the DoW website. A proposal to clear vegetation within a PDWSA requires approval from DoW.)

☐ Yes ☒ No **If yes**, please describe what category of area.

2.7.4 Is there sufficient water available for the proposal?

(Please consult with the DoW as to whether approvals are required to source water as you propose. Where necessary, please provide a letter of intent from the DoW)

☒ Yes ☐ No (please tick)

Groundwater investigations conducted by BHP Billiton and previous owners of the project (WMC) have identified a number of aquifers and areas where groundwater abstraction can be conducted. Modelling conducted by both BHP Billiton and Cameco will be presented to support the proposal.

Approvals to abstract groundwater will be required from the Department of Water and will be sought following further groundwater investigations.

2.7.5 Will the proposal require drainage of the land?

☐ Yes ☒ No **If yes**, how is the site to be drained and will the drainage be connected to an existing Local Authority or Water Corporation drainage system? Please provide details.

2.7.6 Is there a water requirement for the construction and/ or operation of this proposal?

(please tick) ☒ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.7.7 What is the water requirement for the construction and operation of this proposal, in kilolitres per year?

11.1 Ml/day or 4,051,000 kl/year.

2.7.8 What is the proposed source of water for the proposal? (e.g. dam, bore, surface water etc.)

The water requirements will be met from several underground sources. The initial supply will be met from dewatering the orebody prior to the commencement of mining. Dewatering will provide a percentage of the project's requirements. This will diminish over time and be supplemented by groundwater extraction.

Comprehensive recycling systems that may include desalinisation treatment of some waste water streams will be introduced to treat and recover the maximum amount of plant water as possible.

2.8 Pollution

2.8.1 Is there likely to be any discharge of pollutants from this development, such as noise, vibration, gaseous emissions, dust, liquid effluent, solid waste or other pollutants?

(please tick) ☒ Yes **If yes**, complete the rest of this section.

☐ No **If no**, go to the next section.

2.8.2 Is the proposal a prescribed premise, under the Environmental Protection Regulations 1987?

(Refer to the EPA's *General Guide for Referral of Proposals to the EPA under section 38(1) of the EP Act 1986* for more information)

☒ Yes ☐ No

Category 5 – Premises established for the purposes of processing or beneficiating of metallic and non- metallic ore.

2.8.3 Will the proposal result in gaseous emissions to air?

☒ Yes ☐ No **If yes**, please briefly describe.

The proposal will result in dust and CO2 emissions to the air.

2.8.4 Have you done any modelling or analysis to demonstrate that air quality standards will be met, including consideration of cumulative impacts from other emission sources?

☒ Yes ☐ No **If yes**, please briefly describe.

Katestone Environmental was commissioned by BHP Billiton to undertake an air quality impact assessment as part of their investigations and planning for the proposed Yeelirrie development. The air quality impact assessment investigated the potential for impacts associated with mining operations for a scenario representing a stage in the development

that is likely to result in the highest ground-level concentrations at the closest sensitive receptors. The assessment used meteorological and dispersion models to assess the emissions (TSP, PM10, PM2.5 and dust deposition) from the proposed Yeelirrie development in isolation (operationally contributed) and with the inclusion of ambient background levels of dust representative of the region. The ground-level concentrations due to emissions associated with onsite power generation (diesel generators) were also assessed and include nitrogen dioxide (NO2), sulphur dioxide (SO2) and carbon monoxide (CO).

The cumulative air quality impact assessment indicates that the air quality criteria for PM2.5, PM10, TSP and dust deposition due to the operation of the mine are achieved at any sensitive receptor. Assessment of SO2, NO2 and CO indicates that the relevant air quality criteria are met at all sensitive receptors due to emissions from the onsite power generation.

As Cameco proposes to increase the rate of mining and mineral processing, the air quality modelling will be redone to confirm that criteria can be met at the higher rate.

2.8.5 Will the proposal result in liquid effluent discharge?

☒ Yes ☐ No **If yes**, please briefly describe the nature, concentrations and receiving environment.

Before mining can commence, there is a need to undertake a phase of dewatering to prepare the ground for safe mining. During the dewatering phase there will be no mining and milling and rather than discharge the groundwater to the environment or evaporate it, Cameco proposes to re-inject the groundwater into the calcrete aquifer in an attempt to "reserve" the groundwater for future use.

The groundwater would be re-injected within or in close proximity to the ultimate footprint of the proposed open pit and it is unlikely that the groundwater recharge dome will extend any further than the drawdown that will result from the eventual dewatering of the open pit, and will therefore not cause additional long term harm to the environment.

2.8.6 If there is likely to be discharges to a watercourse or marine environment, has any analysis been done to demonstrate that the State Water Quality Management Strategy or other appropriate standards will be able to be met?

☐ Yes ☒ No **If yes**, please describe.

2.8.7 Will the proposal produce or result in solid wastes?

☒ Yes ☐ No If yes, please briefly describe the nature, concentrations and disposal location/ method.

Yes, the proposal will result in a number of streams of waste, including,

- Tailings. The project will produce approximately 36 Mt of tailings. The tailings will be permanently contained within the mined out open pit. Studies are underway to determine the storage requirements to ensure long term physical stability and conformance to standards.
- Low level radioactive waste materials (LLRW). These would comprise laboratory wastes (about 4-6 m3/a) and used personnel protective equipment (about 20 m3/a). In

addition, some used items of plant and equipment that were found not to meet the radiation activity criteria for off-site disposal would be stored within the site boundary in a suitable facility before disposal. LLRW material would ultimately be disposed of within the TSF cells in discrete campaigns – typically, in excavated trenches which would be immediately backfilled.

- Non process liquid and solid wastes. These waste streams would be either recycled or treated prior to disposal on site in a purpose built landfill facility.

2.8.8 Will the proposal result in significant off-site noise emissions?

☐ Yes ☒ No **If yes**, please briefly describe.

2.8.9 Will the development be subject to the Environmental Protection (Noise) Regulations 1997?

☒ Yes ☐ No **If yes**, has any analysis been carried out to demonstrate that the proposal will comply with the Regulations?

Noise analysis was conducted by BHPB. A copy of the assessment is attached. As Cameco proposes to increase the rate of mining and mineral processing, the noise modelling can be redone to confirm that criteria can be met at the higher rate, if required.

2.8.10 Does the proposal have the potential to generate off-site, air quality impacts, dust, odour or another pollutant that may affect the amenity of residents and other "sensitive premises" such as schools and hospitals (proposals in this category may include intensive agriculture, aquaculture, marinas, mines and quarries etc.)?

☐ Yes ☒ No **If yes**, please describe and provide the distance to residences and other "sensitive premises".

2.8.11 If the proposal has a residential component or involves "sensitive premises", is it located near a land use that may discharge a pollutant?

☐ Yes ☒ No ☐ Not Applicable

If yes, please describe and provide the distance to the potential pollution source

2.9 Greenhouse Gas Emissions

2.9.1 Is this proposal likely to result in substantial greenhouse gas emissions (greater than 100 000 tonnes per annum of carbon dioxide equivalent emissions)?

☒ Yes ☐ No **If yes**, please provide an estimate of the annual gross emissions in absolute and in carbon dioxide equivalent figures.

An estimate of the annual gross greenhouse gas emissions in absolute and in carbon dioxide equivalent figures was made by BHPB for the original proposal. Cameco expects the annual emissions will be greater given the increased rate of mining and production. However we expect the life of project emissions to be less given the efficiencies to be

gained from mining at the higher rate. The annual greenhouse gas emissions from the proposed Yeelirrie development were estimated to be 126,400 tpa of CO2-e. A copy of the BHP assessment is attached. Cameco will revise the assessment based on the revised mining proposal.

2.9.2 Further, if yes, please describe proposed measures to minimise emissions, and any sink enhancement actions proposed to offset emissions.

- Waste heat would be recovered from process streams by the use of heat exchangers in the design of the process
- Heated vessels may be insulated if required to minimise heat loss and thus reduce energy requirements
- CO2 would not be purchased for process use; instead, boiler and power station exhaust CO2 would be used in the process
- The metallurgical plant layout and process design would be structured to minimise energy use by reducing pumping as much as possible
- Water in the process plant would be recirculated wherever possible to minimise the need for new make-up water. Tailings water recovery and use of the reverse osmosis plant brine instead of make-up water would minimise the extraction of new water from wells, thus reducing energy consumption.

2.10 Contamination

2.10.1 Has the property on which the proposal is to be located been used in the past for activities which may have caused soil or groundwater contamination?

☐ Yes ☐ No ☒ Unsure **If yes**, please describe.

The Yeelirrie site was the subject of some trial mining activities in the 1980's and the disturbed land was rehabilitated in the early 2000's. The historical activity may have caused some minor groundwater and land contamination. All of the area previously disturbed by trial mining will be disturbed by the Project.

2.10.2 Has any assessment been done for soil or groundwater contamination on the site?

☐ Yes ☒ No **If yes**, please describe.

The Yeelirrie site was the subject of some trial mining activities in the 1980's and the disturbed land was rehabilitated in the early 2000's.

All of the previously disturbed land will be disturbed by the Project, therefore an assessment is not justified.

2.10.3 Has the site been registered as a contaminated site under the *Contaminated Sites Act 2003*? (on finalisation of the CS Regulations and proclamation of the CS Act)

☐ Yes ☒ No **If yes**, please describe.

2.11 Social Surroundings

2.11.1 Is the proposal on a property which contains or is near a site of Aboriginal ethnographic or archaeological significance that may be disturbed?

☐ Yes ☐ No ☒ Unsure **If yes**, please describe.

There have been numerous aboriginal heritage surveys completed over a large area at Yeelirrie since 1976.

From these surveys, Cameco understands that the Project will not impact some significant anthropological sites that occur north of the Project area.

Recent archaeological surveys have identified a number of archaeological sites, some of which occur over the area that would be disturbed by implementation of the Project.

At this time there is some uncertainty about whether these sites are of a level of significance to be protected by the Aboriginal Heritage Act, and Cameco is having ongoing discussions with our consultants, the Department of Aboriginal Affairs and representatives of the traditional owners. If sites of significance are likely to be disturbed by the Project, Cameco will seek permission to disturb these sites under Section 18 of the Act.

2.11.2 Is the proposal on a property which contains or is near a site of high public interest (e.g. a major recreation area or natural scenic feature)?

☐ Yes ☒ No **If yes**, please describe.

2.11.3 Will the proposal result in or require substantial transport of goods, which may affect the amenity of the local area?

☒ Yes ☐ No **If yes**, please describe.

The proposal will result in an increase in the levels of heavy vehicle traffic, in particular during construction.

During normal operations, it is estimated that the operation needs of the project will be met by up to three to four road trains per day.

It is estimated that transport of the final product from site to the Port of Adelaide can be met by four road trains per week.

All heavy traffic will be on existing heavy haulage and the impact of transport is not expected to be significant or affect the amenity of communities on transport routes.

3. PROPOSED MANAGEMENT

3.1 Principles of Environmental Protection

3.1.1 Have you considered how your project gives attention to the following Principles, as set out in section 4A of the EP Act? (For information on the Principles of Environmental Protection, please see EPA Position Statement No. 7, available on the EPA website)

1. The precautionary principle.	☒ Yes	☐ No
2. The principle of intergenerational equity.	☒ Yes	☐ No
3. The principle of the conservation of biological diversity and ecological integrity.	☒ Yes	☐ No
4. Principles relating to improved valuation, pricing and incentive mechanisms.	☒ Yes	☐ No
5. The principle of waste minimisation.	☒ Yes	☐ No

3.1.2 Is the proposal consistent with the EPA's Environmental Protection Bulletins/Position Statements and Environmental Assessment Guidelines/Guidance Statements (available on the EPA website)?

☒ Yes ☐ No

3.2 Consultation

3.2.1 Has public consultation taken place (such as with other government agencies, community groups or neighbours), or is it intended that consultation shall take place?

☒ Yes ☐ No **If yes**, please list those consulted and attach comments or summarise response on a separate sheet.

Consultation with decision making agencies, local government and community groups has commenced and will continue through the life of the approval.

Attachment 1.

Location Plans

Figure 1: Yeelirrie Uranium Project Location Map

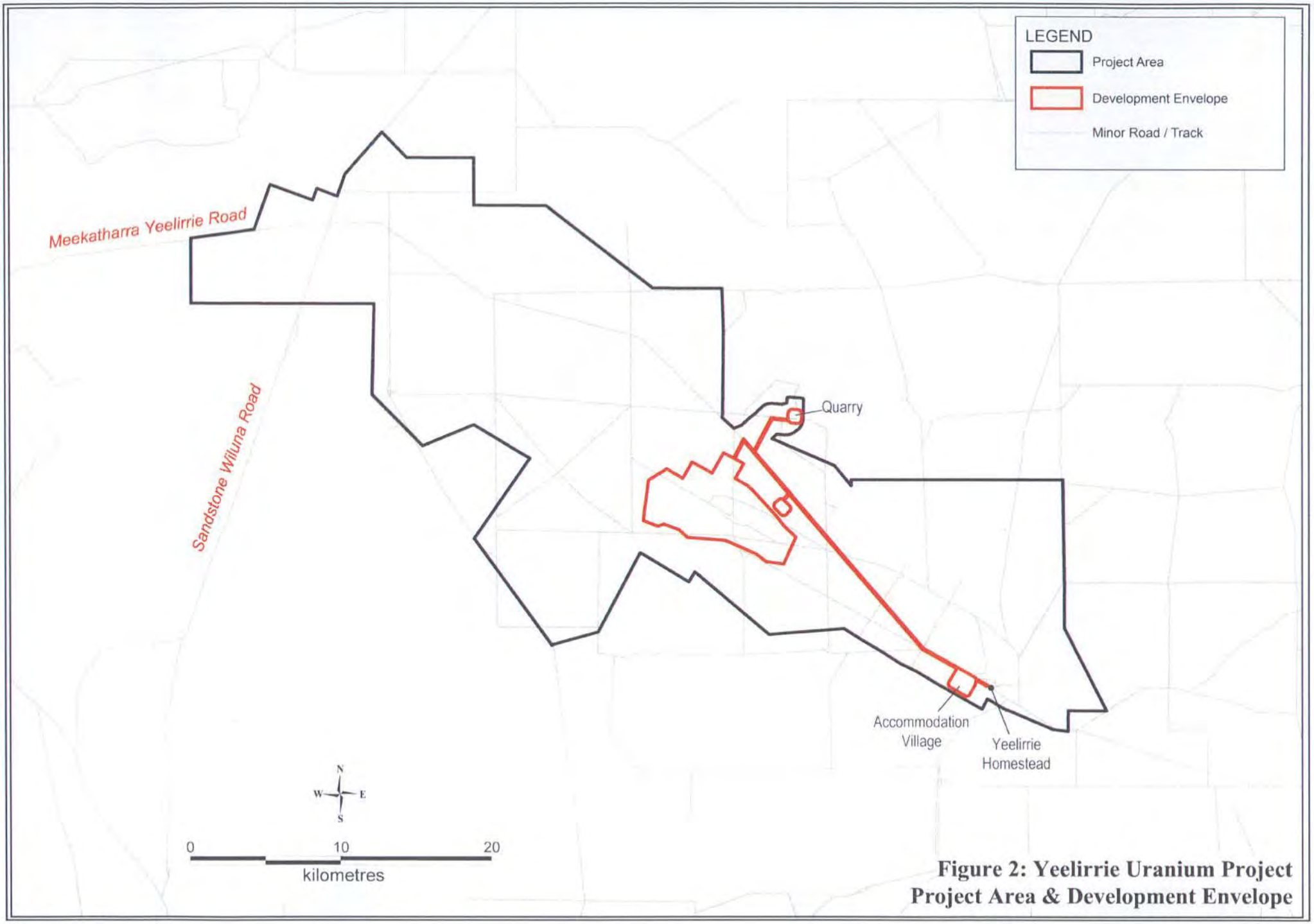


Figure 2: Yeelirrie Uranium Project
Project Area & Development Envelope

Attachment 2.

Key Characteristics Table and Figure 3 showing the Development Envelope

Table 1.1: Proposal Summary and Key characteristics of the proposed development

Proposal title	Yeelirrie Uranium project
Proponent name	Cameco Australia Pty Ltd
Short Description	The proposal is to mine uranium ore from the Yeelirrie deposit, 70 km south-west of Wiluna and 110 km north-west of Leinster, and the construction of associated mine infrastructure, including, ore processing facilities, water supply infrastructure, roads, accommodation, offices and workshops, stockpile and laydown areas and evaporation pond. Tailings will be discharged back into the mine open pit.

Physical Elements

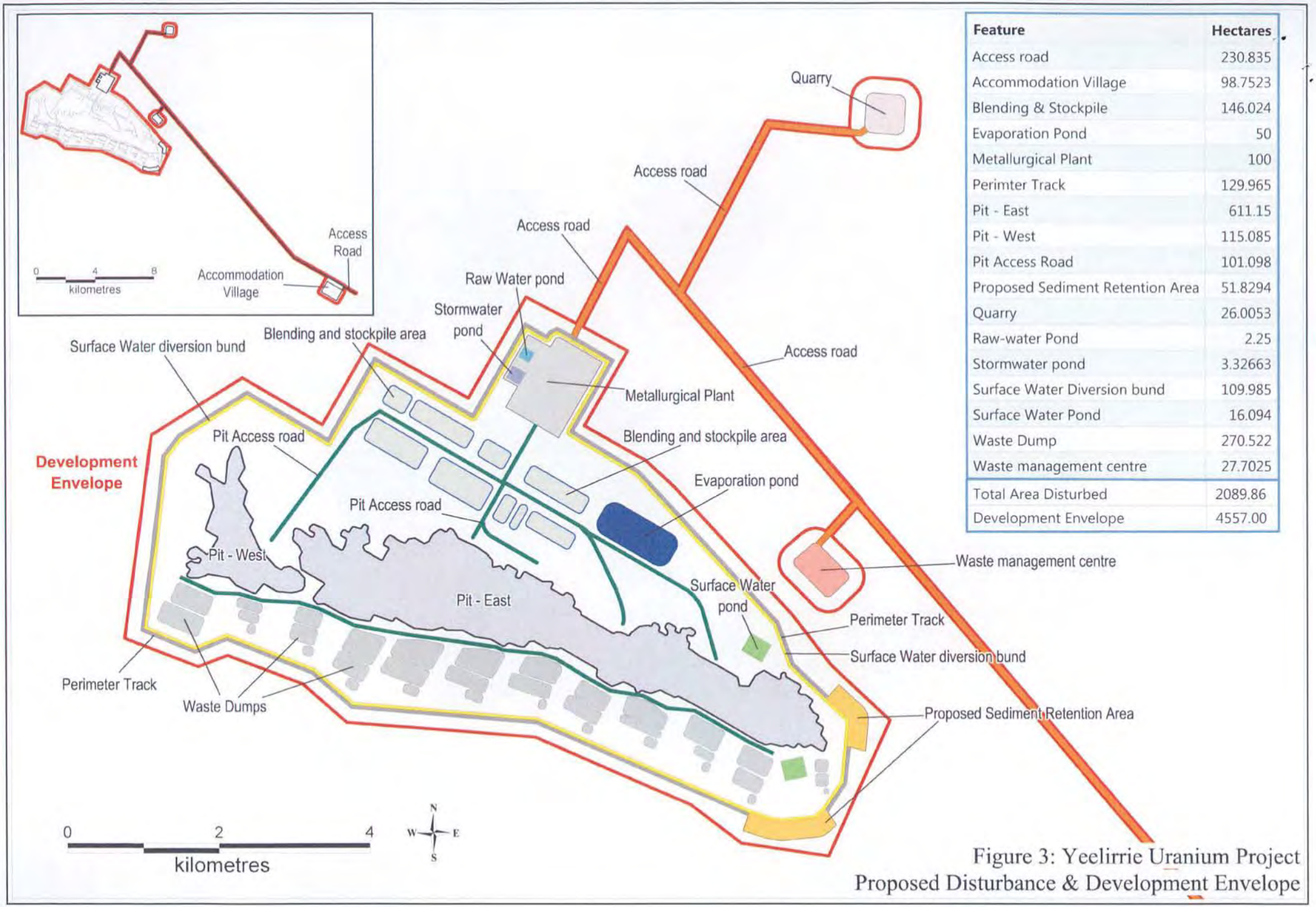
1. Mine Open Pit	Pit- West and Pit-East in Figure 3	Clearing of no more than 726 ha within a 4557 ha development envelope
2. Associated Infrastructure	Figure 3	Clearing of no more than 1363 ha within a 4557 ha development envelope

Operational Elements

1. Mining Rate	Mining with conventional equipment	Up to 14 Mt/a of mineralised ore and non-mineralised material (annual average of approximately 8 Mt)
2. Ore processing (waste)	All tailings returned to the open pits shown in Figure 3	Processing approx. 2.4 Mt of ore per annum.
3. Water Demand	-	Extraction of no more than. 4,000Ml/annum

Non-spatial elements	**Description**
Development operating life	About two years of pre-production mining and construction followed by a further 15 years of mining and up to 17 years of processing
Nature of mineralisation	Shallow-depth alluvial deposit with mineralisation starting from surface to about 10 m below ground level, with a thickness between about 1–7 m
Operations summary	Open pit mining and on-site processing of uranium mineralised ore to produce uranium oxide concentrate
Mining method	Open pit mining using conventional equipment such as excavators, front-end loaders and haul trucks or scrapers
Mining rate	Up to 14 Mt/a of mineralised ore and non-mineralised material (annual average of approximately 8 Mt)
Processing method	Alkali leach and direct precipitation
Production rate	Up to 7,500 tpa of uranium oxide concentrate produced

Tailings management	In-pit disposal to an engineered tailings storage facility
Quarry	A quarry supplying approximately 500,000 tonnes of basic raw material would be located about 8 km north of the processing plant
Waste management facility	A waste management facility would be established on the mining lease, approximately 4 km south-east of the metallurgical plant.
Water supply	The development's primary water supply would be sourced from the initial dewatering of the open pit mine and then, as dewatering rates decreased, water would be piped from a network of groundwater wells near the Ministerial Temporary Reserve, within the proposed Project Area. Obtaining water from this source would require the construction of pipeline and associated pumping infrastructure. The locations of borefields, access tracks and pipelines have not been finally resolved and are therefore not included in the development drawings. The open pit would be dewatered to a depth of up to 12 m below ground level to enable safe and productive mining.
Annualised average water demand	11 (including up to 1.7 ML/d for dust suppression)
Maximum electricity demand	15
Average electricity consumption (MWh/a)	150,000
Maximum diesel demand (KL/a)	80,000 (excluding product transport diesel)
Accommodation village	A village would be constructed about 20 km east of the processing plant, with sufficient accommodation for up to 1,200 people
Peak construction workforce	1,200
Average construction workforce	500
Peak operational workforce	300
Average operational workforce	225



Feature	Hectares
Access road	230.835
Accommodation Village	98.7523
Blending & Stockpile	146.024
Evaporation Pond	50
Metallurgical Plant	100
Perimter Track	129.965
Pit - East	611.15
Pit - West	115.085
Pit Access Road	101.098
Proposed Sediment Retention Area	51.8294
Quarry	26.0053
Raw-water Pond	2.25
Stormwater pond	3.32663
Surface Water Diversion bund	109.985
Surface Water Pond	16.094
Waste Dump	270.522
Waste management centre	27.7025
Total Area Disturbed	2089.86
Development Envelope	4557.00

Figure 3: Yeelirrie Uranium Project
Proposed Disturbance & Development Envelope