

EPBC Act referral



Australian Government

Department of Agriculture, Water and the Environment

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Title of proposal	2021/9096 - Iluka Eneabba Rare Earth Refinery
Section 1	
Summary of your proposed action	
1.1 Project industry type	Mining
1.2 Provide a detailed description of the proposed action, including all proposed activities	
<p>Iluka Midwest Ltd (Iluka), a wholly owned subsidiary of Iluka Resources Ltd, proposes to construct and operate the Eneabba Rare Earth Refinery (ERER) (the Proposed Action) at the existing Eneabba Mine Site, located approximately 300 km north of Perth. The Proposed Action is located within the brownfield Eneabba Mine Site approximately 5 km south of the town of Eneabba (population 147). The Proposed Action has a footprint of approximately 319.6 ha within a Development Envelope of 538 ha (Att 1_Figures 1-11, Figure 1). Construction of the ERER will require up to 5.4 ha of clearing of regrowth native vegetation on historic topsoil stockpiles and rehabilitated shrubland and heathland from within the 319.6 ha Proposed Action footprint.</p> <p>The Proposed Action will process up to 65,000 tonnes per annum (tpa) of the rare earth concentrate (REC) from the Eneabba Concentrator, other Iluka operations (i.e. Wimmera) and third-party sources (i.e. non-Iluka). The ERER will use roasting, leaching and purification processes followed by solvent extraction and product finishing to produce approximately 17,500 tpa of individual rare earth oxides or equivalent as carbonates. The pure rare earths products will be transported as sealed bags or drums via road trains from Eneabba to the port of Fremantle for export. Proposed Action activities include:</p> <ul style="list-style-type: none">• Construction and operation of a rare earth refinery. This includes feed preparation (grinding mill), roasting and leaching, off-gas treatment, leaching, residue washing, purification, solvent extraction and product finishing. The process flow overview is illustrated in Att 1_Figures 1-11, Figure 2;• Solid waste disposal and storage using purpose built engineered In-Ground Tailings Storage Facilities (TSFs) (Att 1_Figures 1-11, Figures 3 and 4 and Att 2);• Liquid waste management through the recovery, treatment and re-use of liquid waste streams;• Utilisation of existing borefield, water infrastructure and groundwater abstraction licences;• Use of supporting infrastructure and utilities including grid sourced power from the existing Eneabba mine site network, natural gas from the existing gas network pipeline connected, surface water management infrastructure and additional administration buildings and facilities;• Transport of rare earth products from Eneabba to the Port of Fremantle. Transport of rare earth products, third party concentrates and reagents to and from Eneabba will be in road trains using existing roads;• Reagent storage; and• Use of Iluka's existing Eneabba Banksia Camp within the Eneabba township for the workforce.	
1.3 What is the extent and location of your proposed action?	
See Appendix B	
1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)	
<p>The Proposed Action is located in the Shire of Carnamah approximately 5 km south east of the town of Eneabba and 3 km east of the Brand Highway. The Eneabba township has a population of about 147 (ABS 2016). The Proposed Action is located within Iluka's existing Eneabba Mineral Sands Mine on State Agreement Mining Lease 267SA.</p> <p>The current land uses within and adjacent to the Proposed Action area include agriculture, mining and Eneabba townsite infrastructure (Att 1_Figures 1-11, Figure 5). Broad-acre agriculture is the major land use in the Eneabba region which is dominated by a mix of cereal cropping and annual pastures for sheep and beef cattle. Within the wider region, there has been an increase in horticultural land use over the past decade including olive plantations, citrus and nut orchards. Other mining activities in the region include iron ore, oil, gas, lime sands, gypsum and limestone. Refer to Att 15 - EPBC Referral Supporting Document_v1 2021-11-19, Section 1.5, pp 2</p>	
1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?	
<p>The Proposed Action has a footprint of approximately 319.6 ha (Att 1_Figures 1-11, Figure 1) of the 538 ha Development Envelope. The Proposed Action footprint consists entirely of cleared or rehabilitated land that has undergone disturbance for previous mining activities. The disturbance footprint incorporates the entire 319.6 ha of the Proposed Action, however, will only require up to 5.4 ha for clearing of native revegetation growing on historic topsoil stockpiles and rehabilitated shrubland and heathland for the Proposed Action. The avoidance footprint is 218.4 ha from the Development Envelope.</p>	
1.7 Proposed action location	



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Other - Located within Iluka's existing Eneabba Mineral Sands Mine on State Agreement Mining Lease 267SA

1.8 Primary jurisdiction

Western Australia

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☐ Yes ☒ No

1.10 Is the proposed action subject to local government planning approval?

☐ Yes ☒ No

1.11 Provide an estimated start and estimated end date for the proposed action

Start Date 02/05/2022

End Date 03/05/2049

1.12 Provide details of the context, planning framework and state and/or local Government requirements

Part IV Environmental Protection Act 1986

The Proposed Action was referred to the Environmental Protection Authority (EPA), Western Australia on 26 October 2021 to determine whether approval under Part IV of the Environmental Protection Act 1986 (EP Act) is required and if so, by which process.

State Agreement

The Proposed Action area is covered by ML 267SA, issued under the Mineral Sands (Eneabba) Agreement Act 1975.

Approval from the Minister for State Development is required for this Proposed Action under Clause 7 of the Mineral Sands (Eneabba) Agreement Act 1975. The application is currently under development.

Clauses 21 and 21A of the State Agreement contemplate Iluka establishing a secondary processing plant, as well as processing of monazite into rare earth oxides.

Other Environmental Approvals Required for the Proposed Action

Iluka is seeking the following environmental approvals in support of this Proposed Action:

- If the EPA decides not to formally assess the ERER, a Native Vegetation Clearing Permit (NVCP) would be required under Section 51(E) of the EP Act for clearing of approximately 5.4 ha of native vegetation (revegetation). The application would be assessed by the Department of Mines, Industry Regulation and Safety.
- Part V EP Act: A Works Approval application will be lodged with Department of Water and Environmental Regulation (DWER) for the ERER. An amendment to Licence L5646/1994/10 will subsequently be sought to allow operation of the ERER.
- Dangerous Goods Safety Act 2004: Dangerous Goods Licence to store fuel and/or chemicals above prescribed volumes, issued by Department of Mines, Industry Resources and Safety (DMIRS).
- Radiation Safety Act 1975 and Mines Safety and Inspection Regulations 1995: A revised Radiation Management Plan and a Radiation Waste Management Plan will be submitted to DMIRS and the Radiological Council of WA.

Existing Approvals and Amendments

Groundwater licences GWL104700 and GWL104709 issued under the Rights in Water and Irrigation Act 1914 allow for abstraction of up to 8,000,000 kL/yr and 3,000,000 kL/yr respectively from the Arrowsmith Perth – Yarragadee North water resource. Water consumption for the ERER is not expected to exceed 500,000 kL/yr and as such no additional approvals are required for groundwater consumption.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders



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Iluka has extensively engaged with stakeholders detailed below during the assessment period of the Proposed Action, integrating engagement on an ongoing Social Impact Assessment with engagement on environmental factors. Key stakeholder groups engaged to date regarding the Proposed Action include:

- Commonwealth Government:
 - Department of Agriculture, Water and the Environment (DAWE).
- State Government:
 - Environmental Protection Authority (EPA).
 - Department of Mines, Industry Regulation and Safety (DMIRS).
 - Department of Water and Environmental Regulation (DWER).
 - Department of Health (DoH) – Radiological Council of WA (RCWA).
 - Department of Jobs, Tourism, Science and Innovation (DJTSI).
 - Midwest Ports Authority (MWPA).
- Local Government:
 - Shire of Irwin.
 - Shire of Carnamah.
 - City of Greater Geraldton.
- Yamatji Nation, via Yamatji Southern Regional Corporation (YSRC).
- Mid-West Chamber of Commerce and Industry (MWCCI).
- Midwest Development Commission (MDC).
- Landowners.
- Eneabba Local Community.
- Geraldton Local Community.

Throughout July, August, September and October 2021 consultation was undertaken with a range of key stakeholders (as listed above) and members of the Eneabba community, facilitated by Iluka's Mid-West Operations Team, corporate Communities Team and independent consultancy, 361 Degrees. A Stakeholder Engagement Outcomes Report is provided in Att 4 - Stakeholder Engagement Outcome Report.

A site visit to the ERER site was conducted on 25th October 2021 and attended by the EPA Chairman, DWER, DJTSI, DMIRS and DoH.

Iluka is actively working towards establishing a collaborative framework for cultural heritage management with YSRC, through the development of a Yamatji Proponent Standard Heritage Agreement. Iluka and YSRC have also agreed to work together to develop the terms of a Memorandum of Understanding that provides the framework for a much broader Regional Co-Operation Agreement. The Regional Co-Operation Agreement will provide the basis for a relationship of mutual benefit and co-operation between Iluka, the YSRC and the Yamatji Nation Traditional Owners in the context of Iluka's present and future operations on Yamatji Nation Land. Further engagement focused more on engineering and environmental aspects of the Eneabba Project are planned and ongoing.

Informed by the outcomes of consultation to date, Iluka will continue to engage all key stakeholders in alignment with the organisation's broader approach to managing its social licence to operate. This will include:

- Regular updates in local newspapers and newsletters.
- Maintaining Iluka's 'Eneabba Engage' website, email addresses and community information line.
- Engagement with DMIRS (Resources Safety) and the RCWA to ensure information regarding naturally occurring radioactive material (NORM) and radiation exposure is accurate.
- Engagement with DJTSI on the State Agreement Proposal prior to submission.
- Engagement with YSRC specifically on the Proposed Action integrated into broader ongoing engagement on relationship development.
- Community forums and other engagement focused on specific themes of strong interest including environmental management, radiation safety, socio-economic development.
- Referral of the ERER to the EPA under the EP Act.
- Referral of the Proposed Action to the Federal Department of Agriculture, Water and the Environment (DAWE) (this document) under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

Environmental Protection and Biodiversity Conservation Act 1999

Iluka is referring this Proposed Action to DAWE under the EPBC Act for the following potential impacts to Matters of National Environmental Significance (MNES):



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- Nuclear Actions.
- Listed Threatened species and ecological communities.

Part IV Environmental Protection Act 1986

A Section 38 Referral has been submitted to the Western Australian EPA to determine whether approval under Part IV of the EP Act is required and if so, by which processes (Att 5 - Section 38 Referral Supporting Document). The Section 38 Referral assesses all impacts of the Proposed Action on all aspects of the environment.

Refer to Section 1.12 for further details.

1.15 Is this action part of a staged development (or a component of a larger project)?

☒ Yes ☐ No

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action

Iluka and its predecessor companies have, since the 1970s, carried out mineral sands mining at the Eneabba Mine site. Mining and rehabilitation activities have occurred on the area of Mining Lease 267SA, granted under the Mineral Sands (Eneabba) Agreement Act 1975 (WA).

Mineral sands processing has occurred at Iluka's Narngulu Mineral Separation Plant (MSP) located 10 km from Geraldton, since 1975. By-product from processing at the Narngulu MSP is transported 150 km by road from Narngulu to Eneabba for storage within the Eneabba Monazite Pit. The by-product stored within the Eneabba Monazite Pit has been characterised as an ore reserve of 827,000 tonne grading 83.5% Heavy Mineral of which 21.5% is the rare-earth bearing mineral monazite.

In 2019, Iluka initiated the Eneabba Project to process stockpiled monazite material into saleable product. This initially involved development of a Wet Screening Plant (WSP): The WSP included physical processing (washing and screening) of stockpiled monazite material to remove sand and clay and produce a Mineral Sands Concentrate with about 20% monazite content. Iluka subsequently developed a Concentrator to enable further processing of the Mineral Sands Concentrate. The Concentrator produces two upgraded products using flotation and wet gravity separation methods. The majority of the output (80%) will be a heavy mineral concentrate product containing primarily zircon and ilmenite. This product is suitable for further processing at Iluka's other Western Australian processing plants or for direct sale. The remaining 20% is a monazite rich heavy mineral containing about 90% monazite. This is suitable feed stock for rare earth refineries.

The WSP commenced operations in April 2020. The produced mineral sands concentrate has been sold and exported overseas. The Concentrator was approved in April 2021 under Part V of the Environmental Protection Act 1986 and is currently under construction. Operations are planned to commence in 2022, with feedstock from the WSP.

The monazite rich heavy mineral concentrate product stream from the Concentrator will be used as part of the feedstock for the Proposed Action.

1.16 Is the proposed action related to other actions or proposals in the region?

☐ Yes ☒ No



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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☐ Yes ☒ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☐ Yes ☒ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☒ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☒ Yes ☐ No

Species or threatened ecological community

Carnaby's Cockatoo (*Calyptorhynchus latirostris*): Endangered under the EPBC Act.

Impact

A specific basic vertebrate fauna survey and targeted cockatoo habitat survey was undertaken by Western Wildlife within the proposed Development Envelope and surrounding areas (Att 6 - Fauna and Habitat Assessment). The Study Area (1,303 ha) included cleared areas, rehabilitated areas of various ages and remnant native vegetation. The desktop study component assessed the likelihood of conservation significant fauna occurring within the study area, and the extent of existing fauna habitats. The subsequent field survey (July 2021) served to contextualise the extents of fauna habitats from the desktop study, and to identify foraging, roosting, and breeding habitats for Carnaby's Cockatoo. The full report is provided as Att 6 - Fauna and Habitat Assessment.

The desktop study identified several records of this species within 30 km of the Development Envelope (Att 6 - Fauna and Habitat Assessment, Section 5.2.1, pp 41). Carnaby Cockatoos were recorded throughout the study area during the field survey.

Whilst Carnaby's Cockatoo is known to breed within 20 km of the study area, suitable breeding habitats (large eucalypt hollows) were not recorded during the 2021 survey in the Development Envelope. Individuals were recorded utilising planted eucalypts within the existing administration building area as overnight roosting sites, noting that these are outside the Development Envelope. Excluding the planted Eucalyptus, the study area was assessed as being unsuitable roosting habitat due to the lack of tall trees in riparian habitats (DSEWPac 2012).

The Proposed Action footprint does not provide breeding or roosting habitat for the species (Att 6 - Fauna and Habitat Assessment, Section 3.2.1, pp 41).

The Development Envelope contains rehabilitated areas that provide potential foraging habitat for Carnaby's Cockatoo, noting that the foraging values are variable dependent on factors such as time since rehabilitation, species re-established and vegetation condition.

The Proposed Action footprint has been designed to avoid disturbance of remnant native vegetation and rehabilitated areas (to the greatest extent possible). Up to 5.4 ha of potential foraging habitat for Carnaby's Cockatoo comprising land partially rehabilitated to shrubland and heathland will be disturbed as a result of implementation of the Proposed Action. This disturbance is considered insignificant, including in the context of the high value foraging habitat being located within 12 km of



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the Proposed Action and that the species is highly mobile and not dependent on the low value vegetation proposed to be removed by the Proposed Action. Therefore, the Action will not lead to a long term decrease in the size of the population of Carnaby's Cockatoo.

An assessment of the impacts against the Commonwealth Significant Impact Guidelines 1.1 was conducted for Carnaby's Cockatoo and is presented in Att 7 - *Calyptorhynchus latirostris*. The outcome of the assessment was that the Action will not have a significant impact on Carnaby's Cockatoo. The assessment was also prepared to address the characteristics of the critical habitat identified in the Carnaby's Cockatoo Recovery Plan (Department of Parks and Wildlife, 2013). Further to this the, impacts associated with the Proposed Action are consistent with the Recovery Objectives / Actions from the Carnaby's Cockatoo Recovery Plan (Department of Parks and Wildlife, 2013).

A Radiation Impact Assessment (RIA) was undertaken (Att 8 - Radiation Impact Assessment) to identify and evaluate key ecological risks associated with the waste materials produced by the Proposed Action containing naturally occurring uranium and thorium radioisotopes. The RIA involved demonstrating that radiation exposures are of no regulatory concern in relation to the maintenance of biological diversity, the conservation of species, or on the health of natural ecosystems (ARPANSA 2015). The modelling completed is based on worst case exposures during operations and rehabilitation phase where the waste material is directly exposed and potential for radiation exposure is highest. The modelling indicates that all terrestrial birds and aquatic birds species residing within or likely to reside within the Eneabba area will receive a dose of less than the screening limit of 10 µGy/h at their representative occupancies. Overall, the radiation impact to terrestrial and aquatic birds during operations and rehabilitation in the area is considered insignificant. Levels for post-closure terrestrial exposure potential are significantly lower and were approximately 1,000 fold below an equivalent dose based on human exposure calculations and radioactivity shielding provided by the final TSF cover.

2.4.2 Do you consider this impact to be significant?

☐ Yes ☒ No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☐ Yes ☒ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☐ Yes ☒ No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☐ Yes ☒ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☒ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☐ Yes ☒ No

2.10 Is the proposed action a nuclear action?

☒ Yes ☐ No

2.10.1 Describe the nature and extent of the likely impact on the whole of the environment

Refer to Att 15 - EPBC Referral Supporting Document_v1 2021-11-19, Section 2.10.1 pp12-16.

2.10.2 Do you consider this impact to be significant?

☐ Yes ☒ No

2.11 Is the proposed action to be taken by a Commonwealth agency?

☐ Yes ☒ No



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2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☒ No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☒ No



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Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

Flora

Flora and vegetation studies undertaken by Umwelt (2021) (Att 10 - Flora and Vegetation Assessment) identified 164 significant flora taxa as listed under the EPBC Act and BC Act considered to potentially occur within the Study Area. Of the 15 recorded species that currently exist within the Disturbance Envelope (Att 1_Figures 1-11_Figure 6), only *Styphelia oblecta* is listed as Threatened under the EPBC Act. The Proposed Action has been located to avoid any clearing of *Styphelia oblecta*.

A further 42 flora species were identified in the desktop study to have potential to occur within the Development Envelope, noting that the Development Envelope has since been refined to avoid areas of native remnant vegetation. As such, the potential presence of these species in the Development Envelope will have decreased.

Seven species listed as Threatened under the EPBC Act were recorded in the DAWE SPRAT database as having potential to occur within the Development Envelope, however no individuals have been recorded. Additionally, studies by Woodman Environmental Consulting in 2009 and 2010 identified five potentially new taxa in the Study Area, although their taxonomies have not been resolved (Att 10 - Flora and Vegetation Assessment, Section 4.3, pp 44).

Fauna

A desktop fauna study undertaken by Western Wildlife (2021) (Att 6 - Fauna and Habitat Assessment) identified 214 vertebrate fauna species as potentially occurring within or surrounding the study area, including 118 birds, 60 reptiles, 10 amphibians and 26 mammal species, of which seven species were introduced. During the July 2021 field work, 40 vertebrate fauna species were opportunistically identified during the field survey, including 32 birds, 1 reptile, 2 amphibians and 5 mammal species, of which three were introduced.

Ten conservation significant fauna species were identified to potentially occur within the Study Area. Of these, three are listed as Threatened under the EPBC Act:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) - Endangered (EPBC and BC Act).
- Malleefowl (*Leipoa ocellata*) - Vulnerable (EPBC and BC Act).
- Kwongan Heath Shield-backed Trapdoor Spider (*Idiosoma kwongan*) - Vulnerable (EPBC Act) and Endangered (BC Act).

Carnaby's Cockatoo is the only one of these three species which has been recorded in the Development Envelope in either previous fauna studies or the 2021 assessment.

Carnaby's Cockatoo is endemic to the south west of Western Australia, occurring primarily in the wheatbelt, but also on the Swan Coastal Plain and wetter southwest. The population size is estimated to be 40,000 birds (or possibly between 10,000 – 60,000). Carnaby's Cockatoo nests in large eucalypt hollows, usually in smooth-barked species such as Salmon Gum or Wandoo, though they may nest in any suitably sized hollow. The breeding season occurs between July to December, with individuals relying on the presence of foraging habitat within 12 km of the breeding site (DPAW 2013). During the non-breeding season, populations tend to migrate towards the coast, foraging in proteaceous shrublands and woodlands.

The desktop study identified several records of this species within 30 km of the Development Envelope (Att 6 - Fauna and Habitat Assessment, Section 5.2.1, pp 41). Whilst Carnaby's Cockatoo is known to breed within 20 km of the study area, suitable breeding habitats (large eucalypt hollows) were not recorded during the 2021 survey in the Development Envelope. The Development Envelope contains unsuitable roosting habitat due to the lack of tall trees in riparian habitats.

The Development Envelope contains partially rehabilitated areas (shrubland and heathland) that provide potential foraging habitat for Carnaby's Cockatoo, noting that the foraging values are variable within rehabilitation areas within the Development Envelope dependent on factors such as time since rehabilitation, species re-established and vegetation condition. The Proposed Action footprint has been designed to avoid disturbance of remnant native vegetation and minimise disturbance to rehabilitated areas. Up to 5.4 ha of potential foraging habitat will be disturbed noting this comprises partially rehabilitated shrubland and heathland. This disturbance is considered insignificant given the high value foraging habitat located within 12 km of the Proposed Action.

3.2 Describe the hydrology relevant to the project area (including water flows)

Refer to Att 15 - EPBC Referral Supporting Document_v1 2021-11-19, Section 3.2, pp 18-21.



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3.3 Describe the soil and vegetation characteristics relevant to the project area

Refer to Att 15 - EPBC Referral Supporting Document_v1 2021-11-19, Section 3.3, pp 21-22.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

There are no outstanding natural features within or near the Proposed Action Area.

3.5 Describe the status of native vegetation relevant to the project area

The Development Envelope consists primarily of cleared or rehabilitated land that has undergone significant disturbance for previous mining activities. No remnant native vegetation will be cleared for implementation of the Proposed Action. The Proposed Action will be located primarily on cleared land (61.5% of Proposed Action footprint), land rehabilitated for farmland (36.3% of Proposed Action footprint) and a small area (5.4 ha) of rehabilitated land (shrubland and heathlands) required to be disturbed for construction of a surface water diversion bund and the refinery plant site.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area

The proposal lies in the Eneabba Plain which slopes gently from an elevation of 100 m above sea level at the base of the Gingin Scarp to approximately 40 m above sea level at the boundary with the coastal belt. The topographic surface of the site is generally flat, with elevations between 120.5 mAHD and 123 mAHD.

3.7 Describe the current condition of the environment relevant to the project area

The Development Envelope consists primarily of cleared or rehabilitated land that has undergone disturbance for previous mining activities (98.6%) (Att 1_Fig 1-11, Figure 11). The Proposed Action footprint has been located entirely on cleared or rehabilitated land within the brownfields mine site. Approximately 121.9 ha (39.6%) of the Proposed Action footprint is considered to be undergoing rehabilitation (predominately to farmland), with the remaining 185.9 ha (60.4%) currently cleared.

No Declared Pests or Weeds of National Significance (WoNS) have been recorded in the Development Envelope (Att 10 - Flora and Vegetation Assessment, Section 4.5, pp 47). Areas of Moderate Confidence Phytophthora Dieback Infested native vegetation have been mapped in rehabilitation areas in the Development Envelope (Att 10 - Flora and Vegetation Assessment, Section 4.12, pp 115). The Proposed Action footprint is confined to existing cleared areas and a very small area of rehabilitated land which have been assessed as not being infested with Phytophthora dieback.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

There are no Commonwealth Heritage places or other places recognised as having heritage values relevant to the project area.

3.9 Describe any Indigenous heritage values relevant to the project area

The Proposed Action is located on the ancestral lands of the Yamatji Nation People in areas where Native Title has been extinguished.

An archaeological and ethnographic heritage survey was commissioned by AMC Mineral Sands in 1991-1992 and the survey report, dated February 1992, was previously lodged with the Department of Aboriginal Affairs. That survey identified no sites of ethnographic significance. One "other heritage place" (ID 28132) containing quartz artefacts was identified which borders a wetland however, development of the Eneabba Mining area was recommended provided the "Other Heritage Place" bordering the wetland was not impacted by mining activities.

A search of the Western Australian Department of Planning, Lands and Aboriginal Heritage Inquiry System was conducted for this assessment which indicated there are no registered Aboriginal Heritage Sites within close proximity to the Proposed Action.

Iluka is developing a relationship with the Yamatji Nation People whose Country the Proposed Action is located within. Proposed Action heritage issues are to be addressed through a Yamatji Proponent Standard Heritage Agreement (YPSHA) which Iluka and YSRC are currently developing. At the same time Iluka and YSRC are progressing the signing of Memorandum of Understanding (MoU) as the framework to establish a relationship of mutual benefit and co-operation in the context of Iluka's present and future operations on Yamatji Nation Country. The MoU provides a framework to agree a Regional Co-Operation Agreement which amongst other matters includes the processes for the conduct of Aboriginal cultural heritage surveys across Iluka Mid-West operations located within Yamatji Nation Country, including the Proposed Action. Iluka will also adhere to the provisions of the Aboriginal Heritage Act 1972.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area



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The Proposed Action is located within Iluka's existing Eneabba Mineral Sands Mine on State Agreement Mining Lease 267SA.

The Development Envelope overlies Iluka owned freehold land P409612 2 (CT 2920/190), Crown Road Reserve, Crown Closed Road Reserve, Vacant Crown Land Victoria Location 11996 (CT LR313/459), Vacant Crown Land, Victoria Location 12563 (CT LR3121/99), Vacant Crown Land and Victoria Location 12562 (CT LR03121/98).

3.11 Describe any existing or any proposed uses relevant to the project area

See Section 1.15.



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Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

Refer to Att 15 - EPBC Referral Supporting Document_v1 2021-11-19, Section 4.1, pp 25-27.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

The environmental outcomes to be achieved is to not significantly impact Carnaby's Cockatoo within the Proposed Action Area.



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Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ World Heritage properties
- ☐ National Heritage places
- ☐ Wetlands of international importance (declared Ramsar wetlands)
- ☐ Listed threatened species or any threatened ecological community
- ☐ Listed migratory species
- ☐ Marine environment outside Commonwealth marine areas
- ☐ Protection of the environment from actions involving Commonwealth land
- ☐ Great Barrier Reef Marine Park
- ☐ A water resource, in relation to coal seam gas development and large coal mining development
- ☐ Protection of the environment from nuclear actions
- ☐ Protection of the environment from Commonwealth actions
- ☐ Commonwealth Heritage places overseas
- ☐ Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Iluka has conducted a thorough assessment of the environmental values of the Proposed Action and surrounding area. The assessment has concluded there will be no significant impact to MNES by the Proposed Action as outlined below.

The Proposed Action design focused on avoiding impacts, specifically locating the Proposed Action within a brownfield mine site area, avoiding clearing of remnant vegetation, limiting the disposal quantities of liquid waste through recycling, utilising former mining pits for below ground solid waste containment and locating the Proposed Action away from populated areas.

A number of the studies used to inform Proposed Action design and relied on within the impact assessments were peer reviewed. Feedback from the peer reviews was incorporated into the relevant assessments and reports.

Peer reviewers included:

- Australian Nuclear Science Technology Organisation (ANSTO) - Waste Classification, ERICA Assessment, RESRAD Assessment.
- MBS Environmental - flora and vegetation assessment, fauna assessment, groundwater modelling, surface water assessment, waste characterisation, ERICA assessment, RESRAD Assessment.
- Dr Paul Vogel - EPA referral supporting document.

Through this comprehensive review process, Iluka has demonstrated that potential impacts to MNES are inherently not significant and can be mitigated and managed to an acceptable level.

Carnaby's Cockatoo (*Calyptorhynchus latirostris*)

The Proposed Action footprint does not provide breeding or roosting habitat for the species. The Development Envelope contains small rehabilitated areas that provide some potential foraging habitat for Carnaby's Cockatoo, noting that the foraging values are variable within rehabilitation areas within the Development Envelope dependent on factors such as time since rehabilitation, species re-established and vegetation condition (Att 6 - Fauna and Habitat Assessment). The Proposed Action footprint has been specifically designed to avoid disturbance of remnant native vegetation and minimise disturbance of rehabilitated areas. As a result, a maximum of 5.4 ha of potential foraging habitat that is partially rehabilitated shrubland and heathland that has established on historic topsoil stockpiles will be disturbed as a result of implementation of the Proposed Action. Loss of this area of habitat is considered to be insignificant considering the high value foraging habitat in areas surrounding the Proposed Action. Loss of this small area of foraging habitat will not adversely impact the conservation status of the species.

Radioactive Materials

As discussed in Section 2.10.1, the Proposed Action may be considered a Nuclear Action.

An RIA to assess the radiological impact of the Proposed Action on the whole of environment was undertaken by MBS Environmental (2021) (Att 8 - Radiation Impact Assessment). The potential for radiation impacts from disposal of processed NORM containing waste has been comprehensively assessed based on use of ERICA and RESRAD modelling for multiple exposure scenarios for environmental protection. Management of inherent risks to individuals, is to be in accordance with the guidance of future regulatory approved plans that cover all aspects of the Proposal Action, including operational and closure stages. Operational controls have been in place for managing NORM waste for 40 years will be continued and expanded to



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ensure exposure is controlled.

The objective of the environmental assessment was to ensure maintenance of robust flora and fauna populations and to ensure the impact on surface waters, groundwater, and soils are low. This involves demonstrating that radiation exposures are of no regulatory concern in relation to the maintenance of biological diversity, conservation of species, or on the health of natural ecosystems (ARPANSA 2015). Modelling completed for the EREER is based on exposures during both the operations and rehabilitation phase.

A qualitative environmental risk assessment was conducted based on the results of exposure assessment and dose rate estimates using recognised modelling tools ERICA and RESRAD. The results of the risk assessment indicated that risks for potential ecological impacts associated with tailings storage, feedstock and intermediate process materials are as low as reasonably achievable (ALARA) with proposed mitigations and management approaches. Potential for human health impact (dose estimates) was also considered and modelled including potential for impact to groundwater (drinking water) and consumption of bush tucker from site. Based on these findings, the Proposed Action including the storage of tailings with elevated radionuclide activity is unlikely to result in significant ecological or human health impacts.



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

Yes, Iluka Midwest Limited has a satisfactory record of responsible environmental management. Refer to Att 15 - EPBC Referral Supporting Document_v1 2021-11-19, Section 6.1, pp 30.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

There are no past or present proceedings against Iluka under Commonwealth or State environmental law.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☒ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

Iluka has a Health, Safety, Environment and Community Policy (Att 14 - HSEC Policy) signed by the Managing Director. The policy reflects Iluka's values of commitment, integrity and responsibility by targeting high levels of performance and pursuing leading practice in the areas of health, safety, environment and community.

Further information is available at www.iluka.com/sustainability.

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☒ Yes ☐ No

6.4.1 EPBC Act No and/or Name of Proposal

Iluka has referred the following actions under the EPBC Act:

- 2020/8617, Iluka Resources Limited/Mining/EL 5947 Yellabinnia Regional Reserve and ML 6315, SA/South Australia/Atacama Mineral Sands Project, 200 km NW of Ceduna, SA ((1/4/2020).
- 2019/8493, Iluka Resources Limited/Mining/Multiple lots 40km SW of Horsham/Victoria/Wimmera Mineral Sands Project, Vic (17/07/2019).
- 2018/8250, Mining/Multiple lots (Section 1.5)/Western Australia/South Capel Remediation Project, WA (18/07/2018).
- 2012/6509, Iluka Resources LTD/Mining/Balranald/New South Wales/Balranald Mineral Sands Project (16/08/2012).
- 2012/6408, Iluka Resources Limited/Mining/Eneabba/WA/IPL North Project - Eneabba Mineral Sands Mine, WA (31/05/2012).
- 2011/5862, Iluka Resources Limited/Exploration (mineral, oil and gas - non-marine)/220km NW of Ceduna, Yellabinnia Regional Reserve /South Australia/Atacama program exploration drilling Yellabinnia Reserve (25/02/2011).
- 2010/5422, Iluka Resources Limited/Exploration (mineral, oil and gas - non-marine)/Yellabinnia Regional Reserve/South Australia/Exploration Drilling Immana Program (30/03/2010).
- 2009/4929, Iluka Resources Limited/Exploration (mineral, oil and gas - non-marine)/N-Western Yellabinnia Regional Reserve/SA/Mineral Sands Drilling (10/06/2009)
- 2009/4810, Iluka Resources Limited/Mining/Approx 54 km SW of Horsham and 105 km N of Hamilton/Victoria/Bondi East Far North Open Cut Mineral Sands Mine Project, Wimmera Region, Victoria (25/03/2009).
- 2008/4409, Mining/Tutunup Road 17 km east of Busselton/WA/Tutunup mineral sands mine (19/08/2008).
- 2008/4192, Iluka Resources Limited/Mining/Eneabba/WA/Expansion of mineral sand mine (5/05/2008) 2008/3977, ILUKA RESOURCES LTD/Mining/30 km south-west of Horsham, western Victoria/Victoria/Echo Sands Mineral Sands Mining Project (21/01/2008).
- 2008/3977, Mining/30 km south-west of Horsham, western Victoria/Victoria/Echo Sands Mineral Sands Mining Project (21/01/2008).
- 2007/3864, Iluka Resources Limited/Mining/EL3742, N-W corner of Yellabinnia Reserve, near Lake Ifould/SA/Jacinth and Ambrosia Deposits Project within EL3742 (23/11/2007).
- 2007/3441, Iluka Resources Limited/Mining/Busselton/Western Australia/Tutunup South Mineral Sands Project (8/05/2007).
- 2007/3225, Iluka Resources Limited/Mining/Capel/Western Australia/Yoganup 215 mineral sands mine Mining Lease 70/401 (5/01/2007).
- 2006/2707, Iluka Resources /Exploration (mineral, oil, gas)/Little Youngs Forest Reserve/VIC/Exploration Drilling for Heavy Mineral Bearing Sand (21/03/2006).



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- 2005/2345, Iluka Resources Ltd/Mining/Waroona/WA/Waroona mineral sand mine (14/10/2005).
- 2005/2001, Iluka Resources Limited/Mining/Cataby Region/Western Australia/Mineral Sands Mine (16/02/2005).
- 2004/1636, Iluka Resources Limited/Mining/Ouyen/Victoria/Mineral Sands Mining - Woornack, Rownack, Rainlover, Pirro and Kulwin (12/07/2004).
- 2003/1119, Iluka Resources Limited/Mining/South West Mineral Field/Shire of Busselton and Capel/WA/Extension of Existing Sand Mining Operations Yoganup West Mining Leases ML70/672, ML70/467, ML70/1107 (7/07/2003).



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Section 7

Information sources

Reference source

Department of Parks and Wildlife 2013. Carnaby's Cockatoo (*Calyptrorhynchus latirostris*) Recovery Plan. Accessed online at <https://www.awe.gov.au/sites/default/files/documents/carnabys-cockatoo-recovery-plan.pdf>

Reliability

Reliable at time of preparation

Uncertainties

No uncertainties



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Section 8
Proposed alternatives
Do you have any feasible alternatives to taking the proposed action? Yes <input checked="" type="checkbox"/> No



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action an organisation or business?

☒ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)

ILUKA MIDWEST LIMITED

Business name

ABN

14008763666

ACN

008763666

Business address

Level 17, 240 St Georges Terrace, Perth, 6000, Western Australia, Australia

Postal address

Main Phone number

+61 8 9360 4700

Fax

Primary email address

ben.kraft@iluka.com

Secondary email address

9.1.2 I qualify for exemption from fees under Regulation 5.23(1)(ii) of the EPBC Regulations because I am:

☐ Small business
☒ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Regulation 5.21A of the EPBC Regulations

☐ Yes ☒ No

9.1.3 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name

John

Last name

Ganser

Job title

Project Manager

Phone

+61 8 9360 4700

Mobile

Fax

Email

john.ganser@iluka.com

Primary address

Level 17, 240 St Georges Terrace, Perth, 6000, Western Australia, Australia

Address

Declaration: Person proposing the action (To be signed by the person at 9.1.3)

I, John Ganser, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity.

Signature: [Signature] Date: 12/11/2021

I, _____, the person proposing the action, consent to the designation of _____ as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature: _____ Date: _____



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent**9.2.1 Is the proposed designated proponent an organisation or business?**

☒ Yes ☐ No

Organisation**Organisation name (as registered for ABN/ACN)**

ILUKA MIDWEST LIMITED

Business name**ABN**

14008763666

ACN

008763666

Business address

Level 17, 240 St Georges Terrace, Perth, 6000, Western Australia, Australia

Postal address**Main Phone number**

+61 8 9360 4700

Fax**Primary email address**

ben.kraft@iluka.com

Secondary email address**9.2.2 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)****First name**

John

Last name

Ganser

Job title

Project Manager

Phone

+61 8 9360 4700

Mobile

+61 459 965 011

Fax**Email**

john.ganser@iluka.com

Primary address

Level 17, 240 St Georges Terrace, Perth, 6000, Western Australia, Australia

Address**Declaration: Proposed Designated Proponent**

I, John Ganser, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:  Date: 12/11/2021



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)

9.3.1 Is the referring party an organisation or a business?

☒ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)

ILUKA MIDWEST LIMITED

Business name

ABN

14008763666

ACN

008763666

Business address

Level 17, 240 St Georges Terrace, Perth, 6000, Western Australia, Australia

Postal address

Main Phone number

+61 8 9360 4700

Fax

Primary email address

Ben.Kraft@iluka.com

Secondary email address

9.3.2 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name

Ben

Last name

Kraft

Job title

Senior Environmental Advisor

Phone

+61 8 9360 4652

Mobile

Fax

Email

Ben.Kraft@iluka.com

Primary address

Level 17, 240 St Georges Terrace, Perth, 6000, Western Australia, Australia

Address

Declaration: Referring party (person preparing the information)

I, Ben Kraft, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature:

Date:

12/4/2021



Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Appendix A

Attachment

Document Type	File Name
action_area_images	Att 2 - TSF Conceptual Design Report.pdf
action_area_images	Att 3 - Development Envelope.kml
action_area_images	Att 3 - MNES Habitat.kml
action_area_images	Att 3 - Proposal Footprint.kml
action_area_images	Att 3_Section 1.4_F1_Location_Plan.pdf
action_area_images	Att 3_Section 1.4_F2_Dev Env and Footprint.pdf
action_area_images	Att 3_Section 1.4_F3_Cockatoo.pdf
action_area_images	Att 1_Figures 1-11.pdf
action_area_images	Att3 F4 Fauna Habitats within Footprint.pdf
public_consultation_reports	Att 4 - Stakeholder Engagement Outcome Report.pdf
supporting_tech_reports	Att 7 - Calyptorhynchus latirostris.pdf
supporting_tech_reports	Att 5 - Section 38 Referral Supporting Document.pdf
supporting_tech_reports	Att 8 - Radiation Impact Assessment.pdf
supporting_tech_reports	Att 9 - Appendix 6 of RIA.pdf
supporting_tech_reports	*Att 15 - EPBC Referral Supporting Document.pdf
supporting_tech_reports	*Att 15 - EPBC Referral Supporting Document_v1 2021-11-17.pdf
supporting_tech_reports	Att 15 - EPBC Referral Supporting Document_v1 2021-11-18.pdf
flora_fauna_investigation	Att 6 - Fauna and Habitat Assessment.pdf
flora_fauna_investigation	Att 10 - Flora and Vegetation Assessment.pdf
hydro_investigation_files	Att 11 -Surface Water Assessment.pdf
hydro_investigation_files	Att 12 - Groundwater Assessment.pdf
impact_reduction_docs	Att 13 - RMP and RWMP.pdf
corp_env_policy_docs	Att 14 - HSEC Policy.pdf

Appendix B

*NOT PUBLISHED - SUPERSEDED

Coordinates

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