

Iluka Eneabba Rare Earth Refinery

Proposal Content Document

Table 1: General proposal content description

Proposal title	Eneabba Rare Earth Refinery
Proponent name	Iluka Midwest Limited
Short description	<p>The Proposal is to construct and operate the Eneabba Rare Earth Refinery (ERER) at the existing Eneabba Mine Site, located approximately 300 km north of Perth (Figure 1). The Proposal will process rare earth concentrate and third party feedstock materials to produce approximately 17,500 tpa of rare earth oxides and carbonate. Products will be transported via road trains from Eneabba to the Port of Fremantle for containerised export.</p> <p>The Proposal includes the following activities:</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.• Solid waste disposal and storage using purpose built engineered In-Ground Tailings Storage Facilities (TSFs);• 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. <p>The Proposal has a footprint of approximately 319.6 ha within a Development Envelope of 538 ha. The Proposal 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 Proposal, however, only up to 5.4 ha of clearing of native revegetation growing on historic topsoil stockpiles and rehabilitated shrubland and heathland will be required for the Proposal.</p>

Table 2: Proposal content elements

Proposal element	Location / description	Maximum extent, capacity or range
Physical elements		
Refinery elements including: <ul style="list-style-type: none"> Rare earth concentrate stockpiles Integrated refinery In-Ground TSFs Reverse osmosis plant Topsoil stockpile 	Figure 5 Figure 7	319.6 ha of disturbance including clearing of up to 5.4 ha of native vegetation regrowing on historical topsoil stockpiles and rehabilitated shrubland and heathland.
Infrastructure elements including: <ul style="list-style-type: none"> Ancillary buildings and supporting infrastructure 		
Operational elements		
Groundwater abstraction for refinery operation	Figure 5 Figure 7	Abstraction of 500,000 kLpa of water under existing groundwater licences (GWL104700 and GWL104709) allowing abstraction of up to 8,000,000 kLpa and 3,000,000 kLpa, respectively from the Arrowsmith Perth - Yarragadee North water resource.
Refinery operation		Processing of 65,000 tonnes of rare earth concentrate to produce approximately 17,500 tonnes per annum of rare earth oxides and carbonates.
In-Ground TSF Capacity		Deposition of 24 t/hr of tailings as slurry (24% solids by mass) to approximately 200,000 tpa.
Proposal elements with greenhouse gas emissions		
Peak annual average		
Scope 1	Plant and equipment: Less than 100,000 t CO ₂ -e	
Scope 2	Electricity use: 90,000 t CO ₂ -e	
Annual average life of refinery		
Scope 1	Plant and equipment: approximately 24,165 t CO ₂ -e per annum	

Scope 2	Electricity use: approximately 63, 515 t CO ₂ -e per annum	
Commissioning		
<i>Not applicable</i>		
Rehabilitation		
<p>At the completion of the proposal, infrastructure will be removed. Progressive rehabilitation would be undertaken on disturbed areas as they become available.</p> <p>Areas disturbed through implementation of this proposal will be designed to be safe and non-polluting and will be constructed so that their final shape, size, stability, and ability to support local native vegetation are comparable to natural landforms in the area.</p>		
Other elements which affect extent of effects on the environment		
Proposal time*	Maximum project life	25 years

** Proponents should only provide realistic timeframes to avoid unnecessary change to proposal applications at referral (section 38C), assessment (section 43A) or post assessment (section 45C).*