



# Decision Document

## *Environmental Protection Act 1986, Part V*

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**Licensee:** **Iluka Resources Limited**

**Licence:** **L6161/1988/13**

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**Registered office:** Level 23, 140 St Georges Terrace  
PERTH WA 6000

**ACN:** 008 675 018

**Premises address:** Yoganup Extended Mineral Sands Mine  
Cain Road  
THE PLAINS WA 6271  
Being part of tenements M70/93 and M70/478 within Lot 1 on Diagram  
29330, Lot 3 & 4 on Diagram 41602, Lot 3833 on Plan 159644, Lot 4988 on  
Plan 171968 and part of State Forest.

**Issue date:** Thursday 20 December 2012

**Commencement date:** Tuesday 1 January 2013

**Expiry date:** Monday, 31 December 2035

### **Decision**

Based on the assessment detailed in this document the Department of Environment Regulation (DER), has decided to issue an amended licence. DER considers that in reaching this decision, it has taken into account all relevant considerations and that the amended Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by: Daniel Hartnup  
Licensing Officer

Decision Document authorised by: Tim Gentle  
Delegated Officer



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## 1 Purpose of this Document

This decision document explains how DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

## 2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/>	
	New Licence <input type="checkbox"/>	
	Licence amendment <input checked="" type="checkbox"/>	
	Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	<b>Category number(s)</b> 8: Mineral sands mining or processing	<b>Assessed design capacity</b> 120,000 tonnes per annual period
Application verified	Date: N/A	
Application fee paid	Date: N/A	
Works Approval has been complied with	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Compliance Certificate received	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	N/A <input checked="" type="checkbox"/>	
	N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the proposal a Major Resource Project?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Referral decision No: Managed under Part V <input type="checkbox"/>	
	Assessed under Part IV <input type="checkbox"/>	
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	Ministerial statement No: EPA Report No:	
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i> )?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	Department of Water consulted Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Is the Premises within an Environmental Protection Policy (EPP) Area	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>



### **3 Executive summary of proposal and assessment**

This assessment sets out DER's decision making in relation to an amendment to Licence L6161/1988/13, issued to Iluka Resources Ltd (Iluka) for the Yoganup Extended Mineral Sands Mine (Yoganup Extended). The amendment relates to changes following recent compliance activities.

Yoganup Extended is a former heavy mineral sands mine located near Capel on the southern Swan Coastal Plain, approximately 200 km south of Perth. The mine was active during the period 1972 – 2007, producing heavy mineral concentrate for the company's mineral separation plants at Capel and North Capel. Low grades of ore remain to be mined in the area, however it is unlikely that mining will recommence in the future.

Though mining is currently not active, since 2003 the main pit void (colloquially referred to by Iluka as the "90 ft. pit") has been used for disposing waste by-products from the company's mineral separation plants and other contaminated materials, such as concrete, steel and dust filter bags. The mineral sands and the waste by-products contain low levels of Naturally Occurring Radioactive Materials (NORMs). As a result, the waste by-products being disposed contain a level of radioactivity, specifically radioactive thorium and uranium as well as the products of their radioactive decay. During 2015, approximately 16,000 tonnes of waste by-products was disposed.

This amendment relates to proposed changes the premises boundary, due to the complexity and practicality of installing permanent markers along the boundary, and an increase in the amount of final tailings permitted for disposal on the premises. DER has determined the amended boundary to follow cadastral boundaries that includes all current open pits, all historic pits that have been backfilled with final tailings, the process water dam and the "90 ft. pit". The amount of waste by-product permitted for disposal has been increased from 50,000 to 100,000 tonnes per annum, in consideration of additional tailings being produced from the reprocessing of a legacy tailings stream at the Capel mineral separation plant, and subject to an updated risk assessment.



## 4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

<b>DECISION TABLE</b>			
<b>Licence section</b>	<b>Condition number</b>	<b>Justification (including risk description &amp; decision methodology where relevant)</b>	<b>Reference documents</b>
<b>General conditions</b>	Old L1.2.1 – L1.2.6	L1.2.1 from the previous licence has been removed as it is not valid, enforceable or risk based. L1.2.2 – L1.2.6 from the previous licence have been removed as they are not enforceable, sufficiently clear or certain.	
<b>Premises operation</b>	L1.2.1 (Old 1.3.1 – 1.3.2)	Table 1.3.1 (waste acceptance) and Table 1.3.2 (waste processing) from the previous licence have been superseded by a new Table 1.2.1, which combines all the waste handling and management requirements.  The amount of tailings permitted for disposal at the “90 ft. pit” has been increased to 100,000 tpa. This facilitates the projected increase in the annual amount of tailings requiring disposal over the next 2 – 3 years, as Iluka continues to re-process a legacy tailings stockpile at the Capel MSP. DER considers the principle environmental risk of the activity is related to the characteristics of the tailings, and not the amount being disposed.  An additional requirement has been imposed on the new Table 1.2.1 regarding material with a pH of ≤4.0 not being permitted for disposal. This relates to the potential for tailings with acid sulfate soils characteristics to be disposed at the site, and in direct connection with the water table.	
	Old 1.3.3	The requirement to notify DER prior to the recommencement of mining activities has been moved to Section 4.3, notification requirements.	
<b>Fugitive emissions</b>	Old L2.6.1 – L2.6.2	L2.6.1 and L2.6.2 from the previous licence have not been included in the amended licence as they are not risk based.	
<b>Process monitoring</b>	L3.3.1	A new Table 3.3.1 has been added to the amended licence to require monthly monitoring of the amount of MSP final tailings disposed on the Premises. This information is required to demonstrate compliance with condition L1.2.1.  A new requirement has been added for monitoring the ambient water quality within the “90 ft. pit”. This formalises existing monitoring being undertaken by the Licensee and will enable anticipation and early identification of future impacts on water quality that could take place if shallow groundwater were to acidify due to a decline in the elevation of the water table.	



<b>DECISION TABLE</b>			
<b>Licence section</b>	<b>Condition number</b>	<b>Justification (including risk description &amp; decision methodology where relevant)</b>	<b>Reference documents</b>
<b>Ambient environmental quality monitoring</b>	L3.4.2	A new contingency monitoring requirement has been added to the amended licence for a full contaminated groundwater assessment for monitoring bores within the vicinity of the "90 ft. pit", should water quality within the pit start to show signs of acidification.	
	No conditions	Note - Radioactive materials are regulated by the Radiological Council of WA (RCWA).	
<b>Information</b>	L4.1.1 – L4.1.3 L4.2.1 – L4.2.3 L4.3.1	Condition 5.1.2 from the previous licence has been removed as it is not valid, enforceable or risk based. Non-annual reporting requirements have been added, and notification requirements have been increased to include notification of any proposal to recommence mining and/or dewatering activities within 3 months.	
<b>Premises boundary</b>	N/A	The premises boundary that had been defined during active mining operations did not follow cadastral or formally surveyed points. Due to difficulties in identifying the boundary on the ground, the premises has now been realigned with cadastral boundaries. The updated boundary includes all current open pits, all historic pits that have been backfilled with dry plant tailings, the process water dam that is still being used to control stormwater, and the "90 ft. pit".	
<b>Licence Duration</b>	N/A	The licence expiry was extended to 2035 by way of administrative notice in April 2016. The expiry has been updated on the amended licence.	



## 5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
19/05/2016	Proponent sent a copy of draft instrument (v1)	Category – premises production capacity. As no mining or processing is planned (only rehab earthworks) can this be reduced or removed?	Noted, and updated consistent with the amount of tailings being disposed at the “90 ft. pit”.
		Iluka South West Operation definition needs to include the Capel MSP.	Noted, and updated.
		There is no monazite concentrate going to Yoganup Extended. This is stored at North Capel under RCWA approval.	Noted.
		Request MSP tailings limit be increased to 100,000 tpa. Also how are wastes from other sources to be captured, e.g. Capel basketball courts and other contaminated sites clean-ups?	Limit increased to 100,000 tpa as amount of waste deposited is not related to environmental risk. Disposal of waste from other sites is under review.
		The new condition (relating to lowest limit of detection) is difficult to understand and is not necessary.	Noted, this condition has been removed.
		There is no flow device at YERWD.	Noted, and updated.
		How will the depth for monitoring pit water be determined?	This will be up to Iluka to determine; however it must be consistent.
		Removal of the permanent markers for the boundary is noted as positive. It is Iluka’s preference for the amended boundary to only reflect the current activities at the man pit void.	Noted, however the premises has been determined to include all areas that present a risk of contamination to the environment.
		The current situation will see DER and DoW regulating discharge of water from the site.	DER will refer the draft licence to DoW and discuss the issue of regulatory duplication.
		IR1 – as there is no monazite concentrate going to the site, the leaching testing is not warranted. In any case leach testing of the monazite concentrate at Eneabba, which should be considered worst case, indicates no significant leaching under acidic conditions. The pH of the pit water is consistently above 7 and relatively stable. Iluka also considers reference to the DER Environmental Standard for leach testing to not apply to the subject tailings material.	DER has determined to defer this matter, as it requires further significant review.
IR2 – Iluka considers that leaching is not an issue and solute-transport modelling, which would be at significant expense, should only be required if pH/alkalinity conditions within the pit were to deteriorate significantly.	DER has determined to defer this matter, as it requires further significant review.		



Date	Event	Comments received/Notes	How comments were taken into consideration
16/06/2016	Proponent sent a copy of draft (v2)	Is it possible that the low level contaminated soil clean-ups that are associated with historic activities be able to be disposed at Yoganup Extended? We do not consider that this poses any risk to the management and environmental impact of the void. We see the risk in not having access.	DER considers the disposal of small quantities of other relates wastes into mined voids including low levels of radiologically contaminated material from other mineral sands ore processing premises to be a component of mineral sands mining or processing.
22/06/2016	Draft (v2) referred to DoW	DoW will ensure the Groundwater Operating Strategy for the site complements the monitoring required by the DER licence.	Noted.

## 6 Risk Assessment

*Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management*

**Table 1: Emissions Risk Matrix**

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High