



Decision Document

Environmental Protection Act 1986, Part V

Licensee: **Western Areas Limited**

Licence: **L8041/1990/5**

Registered office: Level 2, 2 Kings Road
WEST PERTH WA 6005

ACN: 091 049 357

Premises address: Forrestania Nickel Operations
Forrestania – Southern Cross Road
FORRESTANIA WA 6359
Being tenements M74/57, M74/58, M74/90, M74/91, M77/335, M77/399,
M77/545, M77/568, M77/574, M77/582, M77/583, M77/584, M77/586,
M77/587, M77/588, M77/589, M77/912, L74/44, L70/111, L77/104, L77/141,
G70/226 and G70/231

Issue date: Thursday, 17 October 2013

Commencement date: Thursday, 17 October 2013

Expiry date: Sunday, 18 July 2027

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	<table border="1"> <thead> <tr> <th>Category number(s)</th> <th>Assessed design capacity</th> </tr> </thead> <tbody> <tr> <td>5: Processing or beneficiation of metallic or non-metallic ore</td> <td>600,000 tpa</td> </tr> <tr> <td>6: Mine dewatering</td> <td>6,400,000 tpa</td> </tr> <tr> <td>12: Screening, etc. of material</td> <td>150,000 tpa</td> </tr> <tr> <td>54: Sewage facility</td> <td>110 m³/d</td> </tr> <tr> <td>89: Putrescible landfill site</td> <td>1,500 tpa</td> </tr> </tbody> </table>	Category number(s)	Assessed design capacity	5: Processing or beneficiation of metallic or non-metallic ore	600,000 tpa	6: Mine dewatering	6,400,000 tpa	12: Screening, etc. of material	150,000 tpa	54: Sewage facility	110 m ³ /d	89: Putrescible landfill site	1,500 tpa
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89: Putrescible landfill site	1,500 tpa												
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"/> N/A <input checked="" type="checkbox"/>												
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>												
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>												
Commercial-in-confidence claim outcome													
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 type="checkbox"/> No <input checked="" type="checkbox"/>	Department of Water consulted Yes <input type="checkbox"/> No <input checked="" 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 L8041/1990/5, issued to Western Areas Limited (WAL) under Part V of the *Environmental Protection Act 1986* for the Forrestania Nickel Operations. The amendment follows a DER investigation into nickel dust being tracked through towns from damaged containers, on route from the mine to the Esperance Port. Additional changes have been made to update the licence to the current licence format, and to more accurately reflect on ground activities.

The premises is an active nickel sulfide mining operation located near Hyden on the Forrestania greenstone belt, approximately 400 km east of Perth. The operations consist of two high-grade underground nickel sulfide mines, a nickel sulfide concentration plant and associated tailings storage facility (TSF); a significant water management network including several aquifer reinjection borefields and evaporation ponds; and a 450 bed accommodation village. Nickel-bearing ore is processed at the Cosmic Boy Concentrator to produce a nickel concentrate product, which is transported in bulk to the BHP nickel smelter in Kambalda or shipped through the Esperance Port for export. Current capacity allows for the treatment of 680,000 tonnes per annum (tpa) of ore, to produce around 25,000 tonnes of nickel in ore.

In February 2016, DER undertook an investigation into the storage of WAL’s nickel concentrate containers at the Esperance Port. A number of containers were identified as being damaged, with cracks that were leading to spills of nickel concentrate on the ground and nickel dust to reside on the outside of the containers. Further investigations identified the presence of nickel dust on internal roads within the Esperance Port. Recommendations from the investigation have resulted in conditions being imposed on the mine site licence to ensure that all nickel concentrate containers are fit for purpose and pose no risk of leaking nickel dust into the environment prior to leaving the mine site.

Additional changes of significance include: an increase in the design capacity of the Cosmic Boy Concentrator to 680,000 tpa, following recent plant upgrades and modifications that has improved the processing performance; the imposition of discharge quality criteria (i.e. limits) for dewatering effluent discharge; the removal of management targets/triggers for ambient groundwater quality around discharge points; and the requirement to develop a plan for the effective, long term management of groundwater mounding in the vicinity of the Mossco Farm evaporation ponds. The licence has also been updated to the current licence format (v2.9).

DER has considered whether the risk profile of other emissions and discharges from the premises has significantly changed since the licence was renewed in 2013. No significant changes have occurred and therefore DER has not amended conditions relating to other emissions and discharges that were not within the scope of discussions with WAL.



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.

DECISION TABLE			
Licence section	Condition number	Justification (including risk description & decision methodology where relevant)	Reference documents
Cover page	Premises design capacity	The premises design capacity has been increased from 600,000 to 680,000 tpa following minor modifications and upgrades that have increased plant efficiency from 68 to 86 tonnes per hour.	
General conditions	Old L1.2.1 – L1.2.5	Old L1.2.2 – L1.2.5 – these conditions have been removed as they are not enforceable (not sufficiently clear or certain).	
Premises operation	Old L1.3.2 New L1.2.2	L1.3.2 has been superseded by new L1.2.2, which permits the use of dewatering effluent for dust suppression on the premises, providing it is done so in a manner that minimises damage to surrounding vegetation. Authorisation for the other uses of dewatering effluent listed in L1.3.2 are included in other conditions throughout the licence.	
	Old L1.3.3, L1.3.7, L1.3.9 New L1.2.3	L1.3.3 (Table 1.3.1) has been updated by new L1.2.3 (Table 1.2.1) to include all authorised containment infrastructure and minimum infrastructure requirements. Decant water ponds have been renamed 'staging ponds'. Freeboard requirements listed in old L1.3.7 for the TSF have been added into Table 1.2.3, in addition to the bioremediation cells from the old L1.3.9.	
	Old L1.3.4 New L1.2.4	The inspection timeframes for tailings and dewater pipelines and containment infrastructure have been revised to allow for daily inspections whilst operating, and monthly inspections if not operating.	
	Old L1.3.5 – L1.3.6	These conditions have been removed as they are not valid, enforceable or risk based.	
	Old L1.3.8 New L5.2.1	The requirement to undertake a water balance of the TSF has been included as a reporting condition in new L5.2.1.	
	Old L1.3.10 – L1.3.12 New L3.4.2 – L3.4.3	The requirement to undertake a 6-monthly assessment of vegetation within the area of influence of mine dewatering bores and evaporation ponds has been moved to Ambient Environmental Monitoring (L3.4.2 – L3.4.3).	
	Old L1.3.17 – L1.3.25	The previous landfill and wastewater treatment plant conditions have been superseded by new conditions L1.2.6 – L1.2.8. The previous conditions were more suited to operation of a municipal landfill, as such the stringent waste acceptance and covering type conditions have been reduced to reflect that of a mine site landfill.	



DECISION TABLE			
Licence section	Condition number	Justification (including risk description & decision methodology where relevant)	Reference documents
	New L1.2.6	A new condition L1.2.6 has been added to the licence to ensure all product containers leaving the premises are fit for purpose, contain no visible nickel concentrate on the external face, and the concentrate is in a dampened state. This follows an investigation into damaged containers being used for concentrate transport, which indicated there was a risk of concentrate product leaking to the environment on route to the Esperance Port from the mine site.	
Point source emissions to air including monitoring	New L2.2.1	A new condition L2.2.1 has been added to the licence to specify the authorised point source air emissions, being the lime silo vents at Cosmic Boy and the past plant binder silos at Spotted Quoll and Flying Fox.	
Point source emissions to groundwater including monitoring	Old L2.4.1 New L2.3.1 – L2.3.2 L3.2.1	There has only been minor changes to better define the authorised point source emissions to groundwater in a new Table 2.3.1. A new condition 2.3.2 has been added to impose emission limits on groundwater discharge to the reinjection borefields. These limits represent the upper concentrations based on recent groundwater discharge quality monitoring. The existing groundwater monitoring program has remained unchanged, with the exception of only requiring monitoring to be undertaken whilst discharging.	
Fugitive emissions	Old L2.6.1 – L2.6.2	These conditions have been removed as they are not valid, enforceable or risk based.	
Monitoring of inputs and outputs	Old L3.6.1	The previous L3.6.1 requiring monitoring of waste inputs has been removed, as this condition is more suited to monitoring the different waste types being accepted for disposal at a municipal landfill. This level of monitoring has been deemed unnecessary for a mine site landfill, where the only waste being disposed is from the accommodation village. Monitoring of other inputs and outputs are not required to adequately manage emissions from the Premises during operations. No specified conditions relating to the monitoring of inputs and outputs have been added to the licence.	
Process monitoring	Old L3.7.1 New L3.3.1	The old Table 3.7.1 which specifies process monitoring has been updated by the new Table 3.3.1. Monitoring of mine dewatering discharge volumes has been removed from this table and instead included in the new Table 3.2.1 Monitoring of point source emissions to groundwater.	
Ambient quality monitoring	Old L3.8.1 New L3.4.1	The old Table 3.8.1 which specifies the ambient groundwater monitoring program, has been restructured in a new Table 3.4.1 to make it more reader friendly. The management targets specified in the old Table 3.8.1 have been removed; however the limits have been retained. The previous target exceedance reporting has been replaced with an improvement condition, to require the submission of a long term plan to manage groundwater mounding in the vicinity of the Mossco Farm	



DECISION TABLE			
Licence section	Condition number	Justification (including risk description & decision methodology where relevant)	Reference documents
		evaporation ponds.	
Improvements	L4.1.1 – L4.1.2	IR1 – submission of a plan for the effective, long term management of groundwater mounding in the vicinity of the Mossco Farm evaporation ponds. (Refer Ambient quality monitoring).	
Information	L5.1.1 – L5.1.3 L5.2.1 – L5.2.3 L5.3.1	Conditions relating to minimum record keeping requirements have been included in the licence. Submission of an annual environmental report including a description of activities undertaken during the reporting period and a summary of all monitoring undertaken, including an appraisal against previous monitoring data, has been included. A notification condition for breaches of licence limits has also been included.	
Licence Duration	N/A	The licence is due to expire in October 2018. In accordance with DER Guidance Statement: <i>Licence Duration</i> (May 2015), the expiry of the amended licence has been extended to align with the first of the relevant mining tenements to expire, being tenement M77/912 (18 July 2027).	DER Guidance Statement: <i>Licence duration</i> (May 2015)



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
28/05/2015	Proponent sent a copy of draft instrument (v1)	WAL queried the basis of the proposed discharge limits on the aquifer reinjection borefields, as the limit proposed for Sibelius would not be achievable. Suggestions made on increasing the limits in line with current discharge water quality.	The proposed limits have been revised to reflect the upper concentrations of current discharges. This may require review at a later date.
		The septic discharge to the evaporation ponds cannot be measured with a flow meter, and will need to be estimated.	This requirement has been removed from Table 3.3.1.
23/03/2016	Proponent sent a copy of draft instrument (v2)	A number of monitoring bores listed in the ambient groundwater quality monitoring suite are dry.	Where a bore exists for the purposes of monitoring plumes of contamination resulting from seepage, a dry bore is a compliant monitoring result and it is not a non-compliance (breach) to report 'no standing water' or 'dry bore'.
		The GWL's in the table have been superseded.	Table 5.2.1 has been updated to the correct GWL.
29/03/2016	Proponent sent a copy of draft instrument (final)	Request for Digger Rocks evaporation pond to be reinstated as an authorised discharge point.	Pond has been reinstated in Table 1.2.1 as an authorised containment infrastructure.
		Request to increase the design capacity of the processing facility to 680,000 tpa.	Design capacity has been increased to 680,000 tpa.



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