



Licence Number L8041/1990/5

Licence Holder Western Areas Limited

ACN 091 049 357

File Number: DER2015/000458-1~3

Premises Forrestania Nickel Operations
Forrestania – Southern Cross Road
FORRESTANIA WA 6359

Legal description –

Mining Lease 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

Date of Amendment 14 May 2019

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act), as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Tim Gentle

Manager – Resource Industries (South)

Regulatory Services

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA).

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Amendment Notice	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
Licence or Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Licence Holder	Western Areas Limited
Minister	the Minister responsible for the EP Act and associated regulations
m ³	Cubic metres
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
Works Approval	The Works Approval issued under Part V of the EP Act.

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an amendment for Category 85. The Licence Holder has not requested any changes in relation to other categories on the existing licence.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles* (July 2015)
- *Guidance Statement: Risk Assessment* (February 2017)
- *Guidance Statement: Environmental Siting* (November 2016)
- *Guidance Statement: Setting Conditions* (October 2015)
- *Guidance Statement: Decision Making* (February 2017)

Amendment history

Table 2 provides a summary of the amendment history for the Licence since 14 December 2017.

Table 2 : Licence amendments

Issued	Amendment
14 December 2017	Amendment Notice 1 Amendment made to update conditions in relation to dewater discharge to the Mossco Farm evaporation pond and associated groundwater management.
26 January 2019	Amendment Notice 2 Amendment associated with Category 6 only. Amendment made to authorise discharge of mine dewater from the Spotted Quoll underground mine, including construction of a new associated mine dewater pipeline.
14 May 2019	Amendment Notice 3 – this amendment

Amendment description

On 1 February 2019 the Licence Holder applied to amend Licence L8041/1990/5 relating to the Forresteria Nickel Operations (FNO), located ~70kms east of the town of Hyden, within the Shire of Kondinin.

The Licence Holder was granted Works Approval W5665/2014/1 on 21 August 2014, for the construction of two septic tank sludge drying lagoons (the lagoons hereafter) at the junction of tenements M77/583 and M77/584. The lagoons will receive sludge waste extracted from various septic tanks located at the FNO, reducing the need for transport and disposal off site. Sludge discharge will be alternated between each lagoon, whereby drying of sludge will be allowed in one lagoon, while discharge is taking place in the other. Sludge drying will be enabled over approximately 6 months. The dried biosolids from each lagoon will be disposed off at the existing Flying Fox Landfill facility located within the premises.

In July 2016, DWER granted an amendment to Works Approval W5665/2014/1, to extend the timeframe for the instrument to 24 August 2018.

This licence amendment is to add the abovementioned lagoons as containment infrastructure

on the Licence, enabling discharge of septic tank sludge as planned under the Works Approval. The location of the lagoons is shown in the amendment to Schedule 1 detailed herein.

Decision

The conditions of Works Approval W5665/2014/1 required construction of the lagoons in accordance with the “*Septic Sludge Drying Lagoons Works Approval Scoping Document - Forrestania Nickel Operations M77/583 and M77/584, April 2014*”. In addition, a Works Approval compliance document was to be submitted to DWER following the construction of the works.

DWER’s assessment of the applicant’s compliance with the construction requirements is summarised in Table 3 below.

DWER considers that the Applicant has achieved acceptable compliance with the construction requirements under Works Approval W5665/2014/1. The licence amendment is therefore granted, subject to conditions detailed herein and on Licence L8041/1990/5.

Table 1

Table 3: Assessment of compliance with lagoon construction requirements

Construction requirement	Summary of <u>applicant</u> submission or comment	DWER assessment
Construction of two lagoons at the junction of tenements M77/583 and M77/584 as illustrated in Schedule 1 of Works Approval W5665/2014/1	Submission of as constructed location map for the lagoons.	Compliant
Lagoon floors to be flat or nearly flat	Lagoon floors constructed within 50mm (approx.) of being flat across the complete surface area; and therefore have been determined as nearly flat	Compliant
>=300mm clay lining - in-situ or imported (depending on site conditions), moisture conditioned and compacted to >95% maximum dry density	<p>Lagoons constructed to specifications that included 300mm clay lining. The construction of the clay lining has been undertaken in layers, compacted via wheel rolling with a 3-4 Tonne Loader and a 15 Tonne Truck traversing the surface to achieve the 300mm minimum depth. A photographic record of the construction of the clay lining has been provided in the compliance document under the caption 'Plate 4 Clay base lining'; and the imported white clay material can be seen clearly during the layering process.</p> <p>During February 2019, WSA personnel undertook a Clegg Hammer Impact Test of the Septic Drying Lagoons in a grid pattern across each separate surface. The test was undertaken at the height of the summer months to ensure that the substrate material was as dry as possible. The results from this initial testing has given values that exceed the minimum acceptable requirements for the largest commercial aircraft type at the FNO Aerodrome (Dash 8-300). It is the opinion of WSA that these Clegg Hammer Impact test results provide an adequate evaluation of compaction to demonstrate compliance with the design specification outlined in Works Approval W5665/2014/1.</p>	Acceptable. Measures undertaken to achieve and test compaction of the clay lining are deemed acceptable and commensurate with the level of risk. The Works Approval assessment identified that depth to groundwater at the location is greater than 40m below ground level and no groundwater users have been identified in the vicinity.

Construction requirement	Summary of <u>applicant</u> submission or comment	DWER assessment
Target liner permeability of $\sim < 10^{-9}$ (approximate as this permeability nearly impossible to achieve in practice with a clay liner).	It is expected that the clayey material used will achieve suitable permeability and has demonstrated water retaining properties.	Compliant
Effective volume for each lagoon $\sim 250 \text{ m}^3$, total capacity $\sim 500 \text{ m}^3$	The total volume of each lagoon exceeds the effective minimum of 500 m^3	Compliant
Total freeboard in each lagoon of $> 400 \text{ mm}$ which includes sufficient lagoon volume to cater for 1 in 100, 72 hour rainfall event (design rainfall event) and to maintain at least 300 mm freeboard at all times to prevent overtopping including following the design rainfall event	Photographs supplied to demonstrate the construction depth of the lagoons, indicating allowance for the required freeboard.	Compliant
Trafficable surface (eg. compacted gravel) above the clay lining to allow for machinery to remove dried bio-solids material and to provide protection to liner.	Suitable material (cap rock / gravel) has been spread across the base to allow for biosolids removal and to act as a protective barrier to the clay lining.	Compliant
Lagoon embankments will be constructed of compacted clayey material with 3:1 batter slopes on two long sides and one short side	Photographs supplied showing lagoon embankments incorporating clayey material Lagoon bank walls have been constructed as per the proposed design drawings	Compliant
One short embankment will be constructed of compacted clayey material with 7:1 batter slopes to allow machinery access	Photographs supplied showing lagoon embankments incorporating clayey material Lagoon bank walls have been constructed as per the proposed design drawings	Compliant
Trafficable surface at the discharge end of the lagoons to allow for sludge truck park-up and discharge of sludge material via discharge hose. Truck park-up and discharge area to	Photographs supplied showing slope of truck park up area Lagoon bank walls have been constructed as per the	Compliant

Construction requirement	Summary of <u>applicant</u> submission or comment	DWER assessment
grade back to lagoon to capture any spillage from discharge operations.	proposed design drawings	
Site to be fully fenced with 1.8m chain mesh fence with a lockable gate and appropriate signage.	<p>Perimeter fencing has been constructed as per the proposed design, with signage and 3 strands of barbed wire.</p> <p>Photograph supplied showing perimeter fencing and signage.</p>	Compliant

Amendment

Note - inserted text is shown in red underlined text.

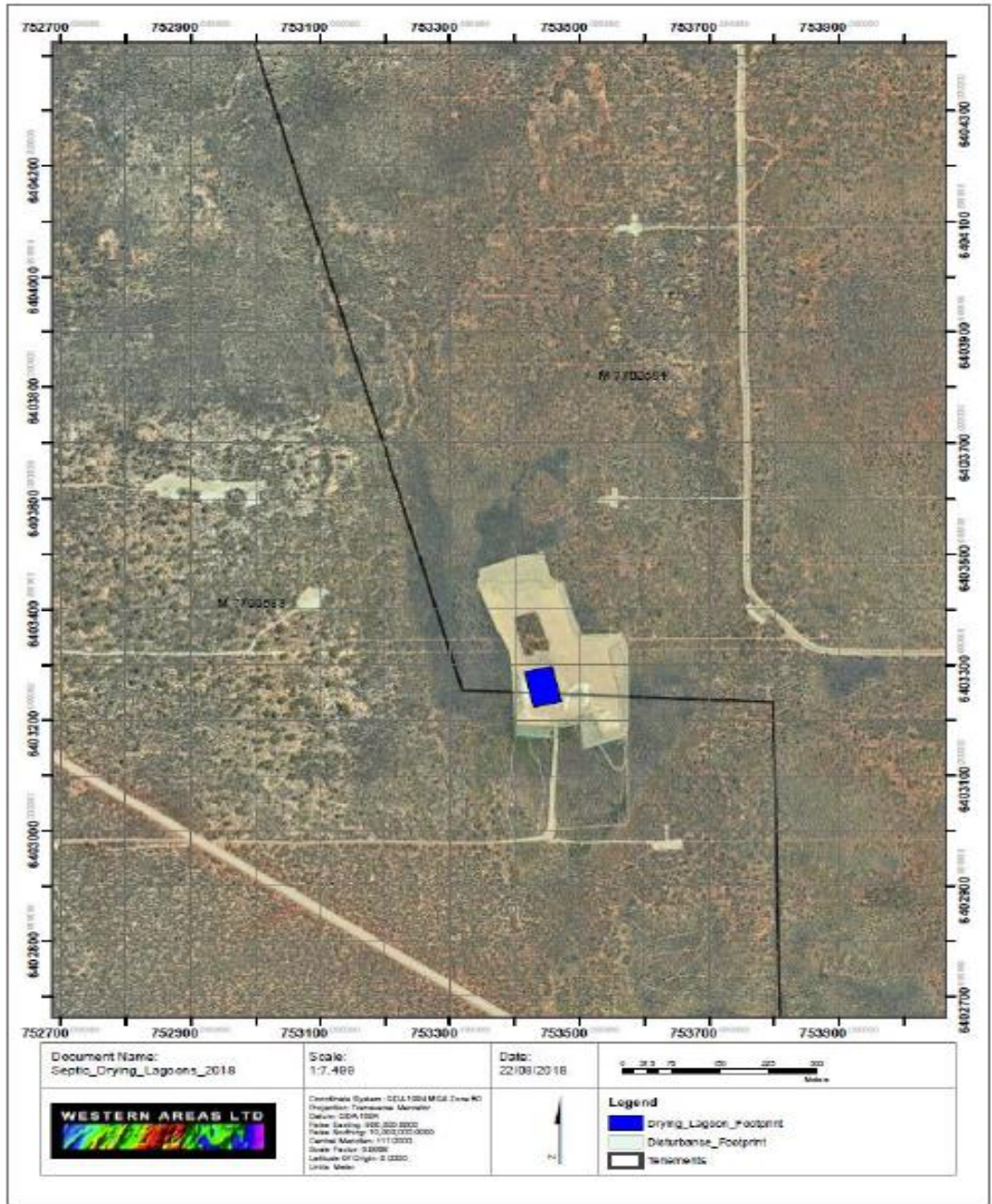
1. The Licence is amended by the amendment of Condition 1.2.3 as detailed below:

The Licensee shall ensure that materials listed in Table 1.2.1 are only discharged into the corresponding infrastructure detailed in Table 1.2.1.

Table 1.2.1: Containment infrastructure		
Infrastructure	Material	Infrastructure requirements
Cosmic Boy TSF	Tailings	<ul style="list-style-type: none"> • Clay lined to achieve a permeability of at least 1×10^{-9} m/s or equivalent; • A minimum freeboard (total) of 500 mm is maintained; • A seepage collection and recovery system is provided and used to capture seepage from the TSF; • Seepage is returned to the TSF or re-used in the process, or to a discharge facility
McMahon open mine pit	Dewatering effluent	<ul style="list-style-type: none"> • None specified
Lounge Lizard open mine pit		
Digger Rocks open mine pit		
Spotted Quoll staging pond		<ul style="list-style-type: none"> • HDPE lined to achieve a permeability of at least 1×10^{-9} m/s or equivalent; • A minimum top of embankment freeboard of 300 mm is maintained
McMahon staging pond		
Cosmic Boy staging pond		
Digger Rocks staging pond		
Digger Rocks evaporation pond		
Mossco Farm evaporation ponds		<ul style="list-style-type: none"> • Clay lined to achieve a permeability of at least 1×10^{-9} m/s or equivalent; • A minimum top of embankment freeboard of 300 mm is maintained
Cosmic Boy accommodation camp wastewater treatment ponds		
Flying Fox septic system evaporation pond		
Spotted Quoll septic system evaporation pond	Sewage effluent/ treated sewage	
Spotted Quoll septage sludge drying pond		
<u>Septic tank sludge drying lagoons at the junction of tenements M77/583 and M77/584.</u>	<u>Septic tank sludge</u>	<ul style="list-style-type: none"> • <u>Constructed in accordance with Works Approval W5665/2014/1.</u> • <u>Maximum depth of 300mm sludge waste.</u> • <u>Total freeboard equal to, or greater than, 300mm is maintained in each lagoon at all times.</u>
Flying Fox bioremediation cell	Hydrocarbon contaminated soil	<ul style="list-style-type: none"> • Clay lined to achieve a permeability of at least 1×10^{-9} m/s or equivalent; • Leachate and stormwater runoff that has come into contact with the soil is directed to a suitably lined collection
Cosmic Boy bioremediation cell		
Spotted Quoll bioremediation cell		

		<p>sump which is capable of storing runoff from a significant rainfall event.</p>
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- The Licence is amended by the insertion of Inset Map 2.1 (below) into Schedule 1 Maps: *Map of containment infrastructure locations and emissions points.*



Inset Map 2.1 - Location of septic tank sludge drying lagoons at the junction of tenements M77/583 and M77/584.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 6 May 2019 for review and comment. The following comments were received on the draft Amendment Notice and have been considered by the Delegated Officer

Summary of Licence Holder comment	DWER response
Request to make a minor correction – i.e. reference to Forrestania Nickel Mining Operation (FNMO) in the amendment description to be updated to Forrestania Nickel Operation (FNO)	Request endorsed.

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Application for amendment to Licence L8041/1990/5 received on 1/2/2019, including: <ul style="list-style-type: none"> - Application form - Works Approval W5665/2014/1 Compliance document – Septic Drying Lagoons, dated 1/10/2018 	Application	DWER records number A1761533
2.	Applicant response to request for further information, dated 10/4/2019	Application	DWER records number A1781827
3.	Works Approval W5665/2014/1 and decision document, issued 21 August 2014	Works Approval	DWER records number A796221
4.	Septic Sludge Drying Lagoons Works Approval Scoping Document – Forrestania Nickel Operations M577/583 and M77/584, dated April 2014		DWER records number A750598
5.	Works Approval W5665/2014/1 Amendment and decision document, issued 25 August 2016	Works Approval amendment	DWER records number A1155543
6.	Licence L8041/1990/5 for Forrestania Nickel Operations, issued on 14 April 2016.	Licence L8041/1990/5	https://www.der.wa.gov.au/component/k2/itemlist/filter?fitem_all=L8041&=&=&=&=&moduleId=94&ItemId=175