



Amendment Notice #1

Licence Number L9099/2017/1

Licence Holder Kundana Gold Pty Ltd

ACN 099 643 252

File Number: DER2017/001616

Premises Carbine/Paradigm Project Area
M16/548
Mount Burges
Shire of Coolgardie

Date of Amendment 29/06/2018

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.

Date signed: 29 June 2018

Danielle Eyre

SENIOR MANAGER LICENSING (RESOURCE INDUSTRIES)

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 33 Cloisters Square PERTH WA 6850 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</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
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
Kundana	Kundana Gold Pty Ltd
kL	kilolitres
Licence Holder	Kundana Gold Pty Ltd
Occupier	has the same meaning given to that term under the EP Act.

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.
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i>
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
mg/L	milligrams per litre

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 6.

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

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

Background

Mining operations at Paradigm were commenced by Paddington Gold Pty Ltd in 2002 under an *Environmental Protection (Gold Extraction Operations Exemption) Order 1993*. The Paradigm pit and underground operations were dewatered via a bunded pipeline to Carbine pit, 2 km to the west. Operations ceased in the middle of 2007.

Northern Star Resources Limited, the parent company wholly owning Kundana Gold Pty Ltd (Kundana), has conducted exploration drilling programs in the Paradigm project area. To allow exploration activities to advance, dewatering of the Paradigm pit to the nearby Carbine pit commenced in April 2017. The bulk of the Paradigm pit lake has been dewatered. Further dewatering will be required to lower the water level for the underground working mine.

Licence L9099/2017/1 was granted on 20 December 2017 with approval for dewatering up to 1,500,000 tonnes per year to allow mining of ore. Once mining commences, ongoing dewatering will be required.

Amendment description

On 14 May 2018, Kundana submitted an application to amend the licence to install and join two spur lines to the existing dewatering pipeline. The spur lines will be approximately 435 m and 22 m each. Two dewatering bores will be commissioned.

There will be no change to the category or approved throughput of the existing licence.

Other approvals

Other approvals relevant to the proposal are outlined in Table 2.

Table 2: Relevant approvals

Legislation	Number	Approval
<i>Rights in Water and Irrigation Act 1914</i> (RIWI Act)	GWL 104053(8)	Abstraction of up to 1,500,000 kL of groundwater for 'dewatering for mining purposes' and dust suppression from the Paradigm pit.
	CAW 200981(1)	Licence to Construct or Alter Well, 26/02/2018

<i>Mining Act 1978</i>	NOI 1658, Reg ID 15060	Carbine Project (1994)
	NOI 3777, Reg ID 17164	Paradigm Open Cut Project (2001)
	NOI 4354, Reg ID 17741	Paradigm Underground Project (2003)
	Mining Proposal Reg. Id 73908	Approved 14/05/2018 to undertake minor clearing and establish the dewatering bores, associated pumping infrastructure and spur lines.

Amendment history

Table 3 provides the amendment history for L9099/2017/1.

Table 3: Licence amendments

Instrument	Issued	Amendment
L9909/2017/1	20/12/2017	New licence for dewatering paradigm pit discharging in Carbine pit
L9909/2017/1	29/06/2018	Amendment Notice 1 for additional discharge pipeline (no new discharge point)

Location and receptors

The premises is located within the Shire of Coolgardie, and is 60 km northwest of the City of Kalgoorlie-Boulder and 17 km southeast of Ora Banda.

Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Department of Biodiversity Conservation and Attraction Lands and Waters - Rowles Lagoon Conservation Park and Clear and Muddy Waters Nature Reserve (conservation of Flora and Fauna).	8 km northwest of the pits and dewatering pipelines

Surface water

There is no significant drainage system within or near the project area. The project area consists of gently undulating plain.

Groundwater and

Groundwater is saline to hypersaline with Total Dissolved Solids concentrations up to 90,000 milligram per litre (mg/L). Groundwater is approximately 40 metres below ground level (mbgl).

Risk assessment

Table 5 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 5: Risk assessment for proposed amendment

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Category 6: Dewatering – additional pipeline.	New abstraction bores resulting in drawdown of groundwater levels.	None	Groundwater dependent ecosystems	Abstraction of groundwater.	Reduction in groundwater availability for dependent vegetation.	Not Assessed	Not Assessed	Not assessed	Not within scope of Part V of the EP Act. Regulated under the RIWI Act.
	Discharge to Carbine pit (no change to existing Licence discharge point).	Dewater sourced from groundwater bores combined with dewater sourced from Paradigm pit.	Groundwater (saline to hypersaline).	Movement of pit lake water through Carbine pit to groundwater.	Contamination of groundwater	Slight Minimal on site impact	Rare Risk event will only occur in exceptional circumstances	Low	Groundwater is hypersaline and of no beneficial use (apart from dust suppression purposes). Risk remains the same and no regulatory controls required.
		Mounding of hypersaline groundwater at Carbine pit.	Surrounding native vegetation	Lateral movement of pit lake water through Carbine pit walls	Decline/ death of vegetation via hypersaline water uptake from roots.	Minor Low level on-site impacts.	Unlikely The risk event will probably not occur	Medium	Risk remains the same. <u>Applicant and Regulatory controls</u> <ul style="list-style-type: none">• Condition 2 requires water level maintained at least 6 m below crest level.
		Overtopping of Carbine pit with hypersaline water.	Native vegetation adjacent to the pit.	Direct discharge	Contaminated soil. Decline/ death of vegetation due to inundation.	Minor Low level on-site impacts.	Unlikely The risk event will probably not occur	Medium	<ul style="list-style-type: none">• Condition 3 requires monitoring of volume, freeboard, and water quality (pH and Total

									Dissolved Solids). No amendment required.
	New dewatering spur lines	Rupture of pipeline - hypersaline discharge	Native vegetation adjacent to the pipeline.	Direct discharge to land	Contaminated soil. Decline/death of vegetation due to inundation.	Minor Low level on-site impacts.	Unlikely The risk event will probably not occur	Medium	<u>Applicant controls</u> Spur lines will be: <ul style="list-style-type: none"> • Welded, 250 mm HDPE, contained within an earthen banded v-drain with three scour pits located at low points to act as a collection sump for spills. • Equipped with leak detection with auto shutdown. • Inspected weekly. <u>Regulatory controls</u> Risk remains the same. The Applicant's controls are conditioned in the existing licence and will be applicable to the new dewatering spur lines.

Decision

As outlined in Table 5, the risks of dewatering with the additional dewater spur lines remains the same. Licence Holder's controls for the additional dewater lines are conditioned on the existing Licence. The Delegated Officer has determined that:

- Condition 2 *Table 3: Infrastructure and equipment controls* is amended to clarify the location and source of dewatering pipelines.
- Schedule 1: Maps *Site plan map* is amended to include the additional dewater lines.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 25/06/2018 and responded stating there were no comments on the draft.

Amendment

1. Condition 2 of the Licence is amended by deletion of the text shown in strikethrough below and the insertion of the bold text shown in underline below:
2. The Licence Holder must ensure that the infrastructure and equipment specified in Column 1 of Table 3 is maintained in good working order and operated in accordance with the requirements specified in Column 2 of Table 3.

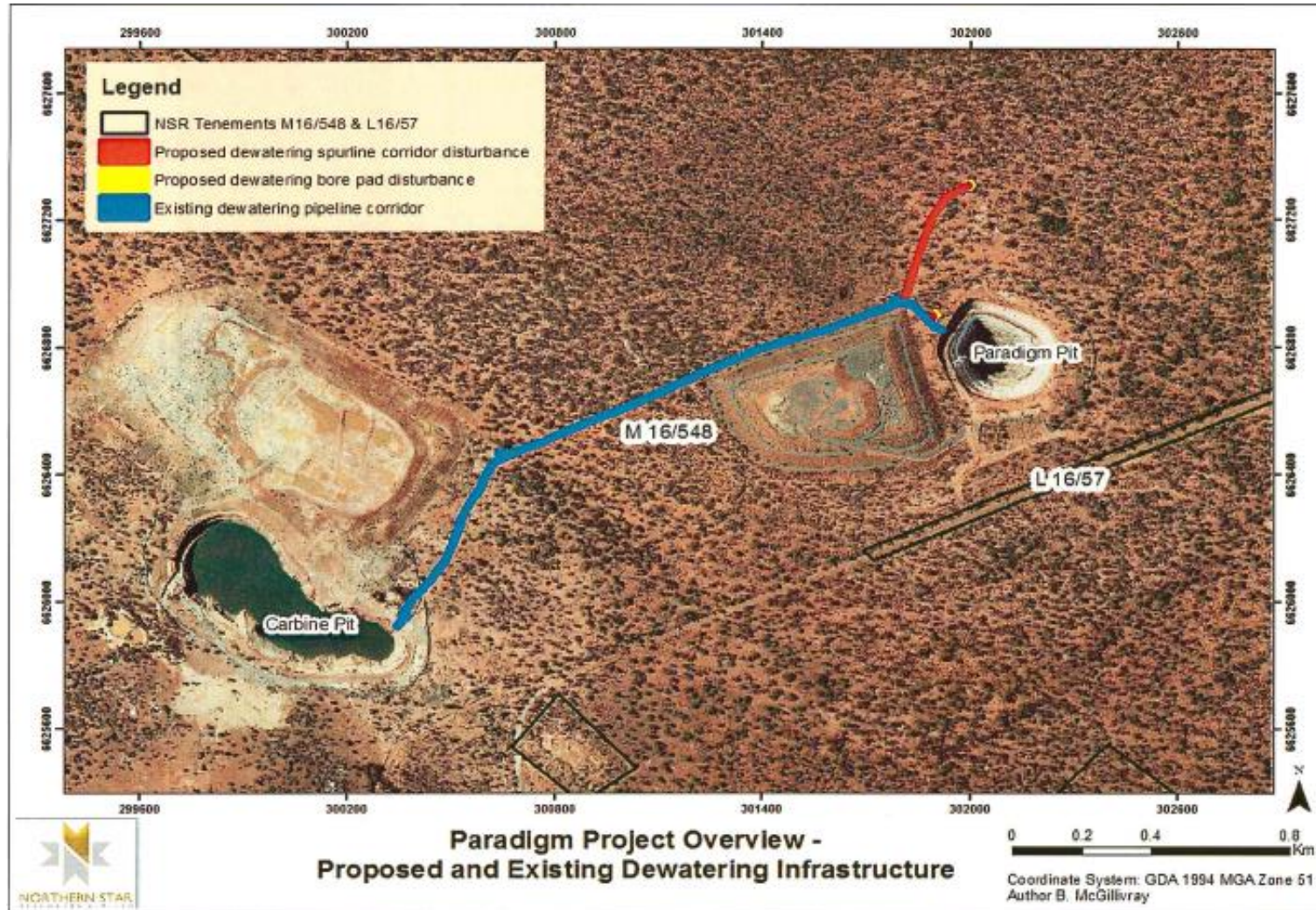
Table 3: Infrastructure and equipment controls table

Column 1	Column 2
Site infrastructure and equipment	Operational requirements
Carbine pit	A minimum vertical freeboard of 6 metres must be maintained below the lowest crest level at all times. Must be inspected monthly (whilst operating) for freeboard capacity. A written log is required to be maintained for each inspection.
HDPE <u>Dewater</u> pipelines	<u>HDPE</u> Contained within an earthen bunded v-drain with three scour pits located at low points to act as a collection sump for spills. Flow meter installed at the dewater discharge point. Equipped with leak detection <u>and auto shutdown</u> between two flow meters located at each end of the pipeline. Leak detection with auto shutdown. Weekly visual inspection of pipelines and pumping infrastructure. <u>Located as depicted in Schedule 1: Maps Site plan map</u>

3. The Licence is amended by the deletion of the Site plan map and the insertion of the Site plan map shown below.

Site plan map

The infrastructure layout and monitoring locations are shown in the map below.



Licence: L9099/2017/1

IR-T08 Amendment Notice (Major) template v2.0 (July 2017)

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L9099/2017/1 – Carbine/Paradigm Project Area	L9099/2017/1	accessed at www.dwer.wa.gov.au
2	Application Form dated 11 May 2018 and supporting document <i>Kundana Gold Pty Ltd Licence Amendment Supporting Document – Paradigm Dewatering</i> , prepared by Northern Star Resources Limited, May 2018.	Application	DWER records (A1673425)
3	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	-	accessed at www.dwer.wa.gov.au
4	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	-	
5	DER, February, 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	-	
6	DER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	-	
7	DER, November, 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Environment Regulation, Perth.	-	

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 25/06/2018 and responded stating there were no comments on the draft.