



Licence Number L7789/2001/9

Licence Holder Doral Mineral Sands Pty Ltd
ACN 096 342 451

File Number: DER2014/000454

Premises Dardanup Mineral Sands Mine
Offer Road
HENTY WA 6236
Legal description –
Part of Mining Lease M70/675, including all of Lots 450
& 451 on Plan 302690 and Lots 3551, 3554 and 3555
on Plan 202219

Date of Amendment Tuesday, 20 February 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* 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 and follows.

Date signed: 20 February 2018

Tim Gentle

Manager Licensing (Resource Industries)

Regulatory Services (Environment)

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
AHD	Australian Height Datum
Annual Period	refers to the 12 month period commencing from 1 January to 31 December in the same year
CEO	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
Compliance Report	refers to a report in a format approved by the CEO and presented by the Licence Holder or as specified by the CEO (guidelines and templates available on the Department's website)
Condition	refers to a condition to which this Notice is subject under s.62 of the EP Act
CS Act	<i>Contaminated Sites Act 2003 (WA)</i>
Delegated Officer	an officer under section 20 of the EP Act
DWER	Department of Water and Environmental Regulation
DMIRS	Department of Mines, Industry Regulation and Safety
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
Existing Licence	the Licence issued under Part V, Division 3 of the EP Act and in force prior to this Notice
Licence Holder	as specified at the front of this Notice
MCP	Mine Closure Plan
NORM	Naturally Occurring Radioactive Material
Notice	refers to this document
Prescribed Premises	has the same meaning given to that term under the EP Act
Premises	refers to the premises to which this Notice applies, as specified at the front of this Notice
RIWI Act	<i>Rights in Water and Irrigation Act 1914 (WA)</i>

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Existing 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.

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

- *Guidance Statement: Regulatory Principles (July 2015)*;
- *Guidance Statement: Decision Making (February 2017)*; and
- *Guidance Statement: Risk Assessment (February 2017)*.

Amendment description

This notice is the result of a written request by Doral Mineral Sands Pty Ltd (the Licence Holder) to update the licence to reflect further rehabilitation progression at the site, including:

- excluding fully rehabilitated areas from the Premises boundary;
- removing reference to the emergency discharge sumps and v-notch;
- removing ambient air quality monitoring requirements; and
- reducing surface water and groundwater monitoring requirements.

Background

The Licence Holder operated the Dardanup Mineral Sands Mine during the period 2002 – 2015 when production ceased and the mine went into closure and rehabilitation. The licence was amended in 2016 to reflect the non-operational status of the site, and to authorise emissions and discharges during mine closure and rehabilitation works.

Rehabilitation at the site has progressed such that perimeter land (previous mine voids and solar drying ponds) has been fully rehabilitated back to pasture and used for grazing and hay production over the past few seasons. Only a small area remains to be rehabilitated and relates to the former-processing plant area in the middle of M70/675, which is scheduled for completion by mid-2018.

As a result of completed rehabilitation works, the Licence Holder is seeking to:

- remove perimeter drains and bunds to allow for a return to natural surface water movements to ephemeral creeks and drains;
- cease monitoring of perimeter surface water sites in rehabilitated areas;
- cease ambient air quality monitoring as activities remaining on site are not in proximity to sensitive receptors; and
- cease monitoring of perimeter groundwater bores in rehabilitated areas.

Decision

The Delegated Officer has reviewed the Existing Licence with respect to the requested amendments and has determined the following:

- Surface water runoff from areas disturbed by mining activities has been contained on the Premises via a series of drains and channels for treatment, prior to use in processing or off-site discharge. In rehabilitated areas that have achieved final landform state, as defined in the approved Mine Closure Plan (MCP) for the Premises (Doral, 2017), runoff is no longer required to be contained. Natural surface water flows are therefore permitted to be returned to local ephemeral creeks and drains in these areas (surface water management is still required within non-rehabilitated areas);
- Monitoring of surface water quality in ephemeral creeks which occur within the Premises has been routinely conducted (upstream and downstream), to ensure the quality of water leaving the Premises has not been impacted by mining activities. Ongoing monitoring of creeks

within rehabilitated areas is no longer required, as these areas are no longer impacted by mining activities;

- Monitoring of ambient air quality has been routinely conducted at specified locations along the Premises boundary, to enable proactive dust management to ensure off-site sensitive receptors are not impacted by fugitive dust from mining activities. Ongoing monitoring is no longer required as there are no sensitive receptors within proximity to the remaining earthworks;
- Monitoring of groundwater levels and quality has been routinely conducted in bores located across the Premises, primarily to detect impacts on the local aquifer systems from mine dewatering (regulated under the RIWI Act), disturbance of acid sulfate soils and seepage of contaminants from co-disposed mine tailings. DWER has reviewed available groundwater data and is satisfied the long-term post-closure contamination risk in areas that have been rehabilitated to date is low. As such, ongoing monitoring within rehabilitated areas is no longer required¹; and
- Given the above, rehabilitated areas that have achieved the final landform state, as defined in the approved MCP, can now be excluded from the Premises boundary. The Premises boundary has therefore been revised to only include Lots 450, 451, 3551, 3554 and 3555 within M70/675, which comprises the two remaining mine voids, solar drying ponds and other infrastructure scheduled for rehabilitation in 2018.

The Delegated Officer also notes the following:

- A portion of the mine site (Lot 3551 on Plan 202219 and Lot 105 on Plan 32063) has been classified as *possibly contaminated – investigation required* under the *Contaminated Sites Act 2003* (CS Act) due to the presence of monazite, a naturally occurring radioactive material (NORM), and other contaminants associated with the disposal of process tailings during the period 2002 – 2006 (DWER, 2018). The site classification requires that further investigations, including groundwater investigations, be undertaken to determine the status of groundwater beneath the site and to assess the risks associated with NORMs. An accredited contaminated sites auditor will be required to review any contamination investigations, assessment, monitoring and remediation undertaken at the site as part of closure works, and submit a mandatory auditor's report to DWER upon completion, providing recommendations regarding the site's classification under the CS Act;
- Ministerial Statement 484 requires a 'Decommissioning Management Plan' to be prepared and implemented on advice of the Department of Environmental Protection (now DWER) and the Department of Minerals and Energy (now the Department of Mines, Industry Regulation and Safety [DMIRS]). The plan is to address identification and management of contaminated areas, and provide evidence to relevant statutory authorities;
- Under the MCP, post-closure environmental monitoring, including surface water and groundwater monitoring, will be targeted at demonstrating the fulfilment of completion criteria (i.e. surface and groundwater levels and quality are consistent with surrounding areas); and
- DWER has previously recommended that a site-specific health and safety plan be developed by the Licence Holder to address the health risks associated with exposure to contaminants in soils.

Given the above, the Delegated Officer is satisfied the requirement for ongoing post-closure groundwater monitoring is already in place under the CS Act and other approvals, and that a Closure Notice under s. 68A of the EP Act is not required to address any long-term risk to groundwater quality beneath the site and off-site.

¹ Ongoing monitoring may be required under other approvals, e.g. Mine Closure Plan, Ministerial Statement, Contaminated Sites Act, etc.

Amendment history

Table 2 provides the amendment history for L7789/2001/9.

Table 2: Licence amendments

Instrument	Issued	Amendment
L7789/2001/9	04/06/2015	Licence re-issued for 2 years, as mining operations are projected to cease by the end of 2015. Category 6 mine dewatering added.
L7789/2001/9	18/06/2015	Administrative amendment.
L7789/2001/9	29/04/2016	Amendment by notice – extend expiry date to 2028.
L7789/2001/9	07/07/2016	Amendment following mine closure in December 2015. Conditions updated to reflect the closure and rehabilitation phase.
L7789/2001/9	20/02/2018	Amendment Notice 1 – update following rehabilitation progression. Premises boundary revised, monitoring requirements reduced.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 19 February 2018 and provided no additional comments.

Amendment

- The “Premises address” on the covering page of the Existing Licence is amended by the deletion of the text shown in strikethrough below and insertion of the red text shown in underline below:

Dardanup Mineral Sands Mine
Offer Road
HENTY WA 6236

Being part of mining tenements ~~M70/643, M70/652, M70/675, M70/720, M70/748 and M70/893~~, including all of Lots 107—112 on Plan 2842, and Lots 301—302 on Plan 63847 450 & 451 on Plan 302690 and Lots 3551, 3554 and 3555 on Plan 202219, as depicted in Schedule 1.

- The “Premises map” and “Map of monitoring locations” in Schedule 1 of the Existing Licence is replaced by the map in Schedule 1 of this Notice.
- The Existing Licence is amended by the deletion of the following Conditions:

~~1.2.1 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.~~

Infrastructure	Material	Infrastructure requirements
Emergency discharge sumps	Harvested stormwater	Flow metering device, as described in the Surface Water Emergency Discharge Plan
Process water pond		V-notch weir discharge point
Drop-out dam		Sedimentation basin

~~1.2.2 The Licensee shall submit to the CEO a Surface Water Emergency Discharge Plan by 1 March in each year. The plan shall include, but not be limited to the following:~~
(a) ~~a description of the proposed surface water emergency discharge point(s) to be constructed and operational for the following winter season;~~

- ~~(b) — the location and capacity of the emergency discharge sump(s);~~
- ~~(c) — water quality targets to be applied to any discharge through the surface water emergency discharge point(s); and~~
- ~~(d) — management actions that will apply to the emergency discharge point(s) in the event that water quality targets are not met.~~

~~2.2.1 — The Licensee shall ensure that where waste is emitted to surface water from the emission points in Table 2.2.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Licence.~~

Table 2.2.1: Emission points to surface water		
Emission point reference	Description	Source including abatement
W1	Overflow from the process water pond v-notch weir into Willoughby Creek	Harvested stormwater, treated via settling with sufficient residence time to reduce suspended solids

~~2.2.2 — The Licensee shall take the relevant management action in the case of an event in Table 2.2.2.~~

Table 2.2.2: Management actions			
Emission point reference	Event/ action reference	Event	Management action
Not specified	EW1	Significant rainfall event requiring short term excess surface water management	Discharge and monitoring in accordance with the Surface Water Emergency Discharge Plan

~~3.2.1 — The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.~~

Table 3.2.1: Monitoring of point source emissions to surface water			
Emission point reference	Parameter	Units	Frequency
W1	Volumetric flow rate	m³/d	Weekly, when discharging
	pH¹	-	
	Electrical conductivity^{1,2}	µS/cm	
	Total suspended solids	mg/L	
	Total dissolved solids		
	Total titratable acidity		
	Sulfate		Annual
Aluminum, arsenic, chromium, copper, lead, manganese, nickel, zinc, total petroleum hydrocarbons, ammonium			

~~Note 1: — In-field non-NATA accredited analysis permitted.~~

~~Note 2: — Referenced to 25°C.~~

~~3.3.1 The Licensee shall undertake the monitoring in Tables 3.3.1, 3.3.3 and 3.3.4 according to the specifications in those tables and record and investigate results that do not meet any limit specified.~~

Table 3.3.1: Monitoring of ambient air quality

Monitoring point reference	Parameter	Limit	Units	Averaging period	Frequency	Method
AQ1—AQ4	TSP	260	µg/m³	24 hours	Monthly[†]	AS 3580.9.3

~~Note 1: Commencing 1 October and ending 31 May the following year.~~

~~3.3.2 The Licensee shall ensure that the siting of ambient air monitoring equipment is in accordance with AS 3580.1.1.~~

~~3.3.3 The Licensee is exempt from compliance with the limit specified in Table 3.3.1 if in the case of an event in Table 3.3.2:~~
~~(a) the corresponding management action is taken; and~~
~~(b) there is sufficient evidence to demonstrate that the exceedance is not attributed to operations on the Premises.~~

Table 3.3.2: Management actions

Monitoring point reference	Event/action reference	Event	Management action
AQ1—AQ4	EA1	Exceedance of the limit specified in Table 3.3.1	Undertake an investigation of the exceedance, including but not limited to: (a) the root cause analysis for the exceedance; and (b) any common or contributory factors for the exceedance.

4. Table 2.2.3 of the Existing Licence is amended by the deletion of the text shown in strikethrough below the insertion of the red text shown in underline below:

Table 2.2.3: Emission points to land

Emission point reference	Description	Source including abatement
L1—L13 <u>Orange shaded areas in Schedule 1 map</u>	Mine voids	- Dried clay slimes from solar evaporation ponds, blended with overburden for backfill - <u>Sand tailings</u>

5. Table 3.3.3 of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

Table 3.3.3: Monitoring of ambient surface water quality

Monitoring point reference	Parameter	Units	Averaging period	Frequency
WQ1—WQ17 <u>WQ1—WQ10</u>	pH¹	-	Spot sample	Monthly, when flowing
	Electrical conductivity^{1,2}	µS/cm		
	Total suspended solids	mg/L		
	Total dissolved solids			

~~Note 1: In-field non-NATA accredited analysis permitted.~~

~~Note 2: Referenced to 25°C.~~

6. Table 3.3.4 of the Existing Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

Table 3.3.4: Monitoring of ambient groundwater quality				
Monitoring point reference	Parameter	Units	Averaging period	Frequency
GQ1—GQ32 <u>GQ1 – GQ7</u>	Standing water level	m AHD	Spot sample	6-monthly
	pH ¹	-		
	Electrical conductivity ^{1,2}	µS/cm		
	Total dissolved solids	mg/L		
	Total titratable acidity (TAA)			
	Total alkalinity (TA)			
	Major ions: bicarbonate, calcium, carbonate, chloride, magnesium, nitrate, potassium, sodium, sulfate			
Metals and metalloids: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium (total), cobalt, copper, iron (total), lead, manganese, mercury (total), molybdenum, nickel, selenium, silver, uranium, vanadium, zinc		Annually		

Note 1: In-field non-NATA accredited analysis permitted.

Note 2: Referenced to 25°C.

Information

7. Condition 4.1.2 of the Existing Licence is replaced by the following Condition:

4.1.2 *The Licence Holder must submit to the CEO, no later than 1 March in each year, a Compliance Report indicating the extent to which the Licence Holder has complied with the Conditions in this Licence for the preceding Annual Period.*

8. Table 4.2.1 of the Existing Licence is amended by the deletion of the text shown in strikethrough below:

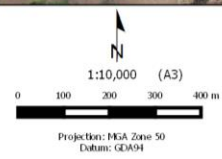
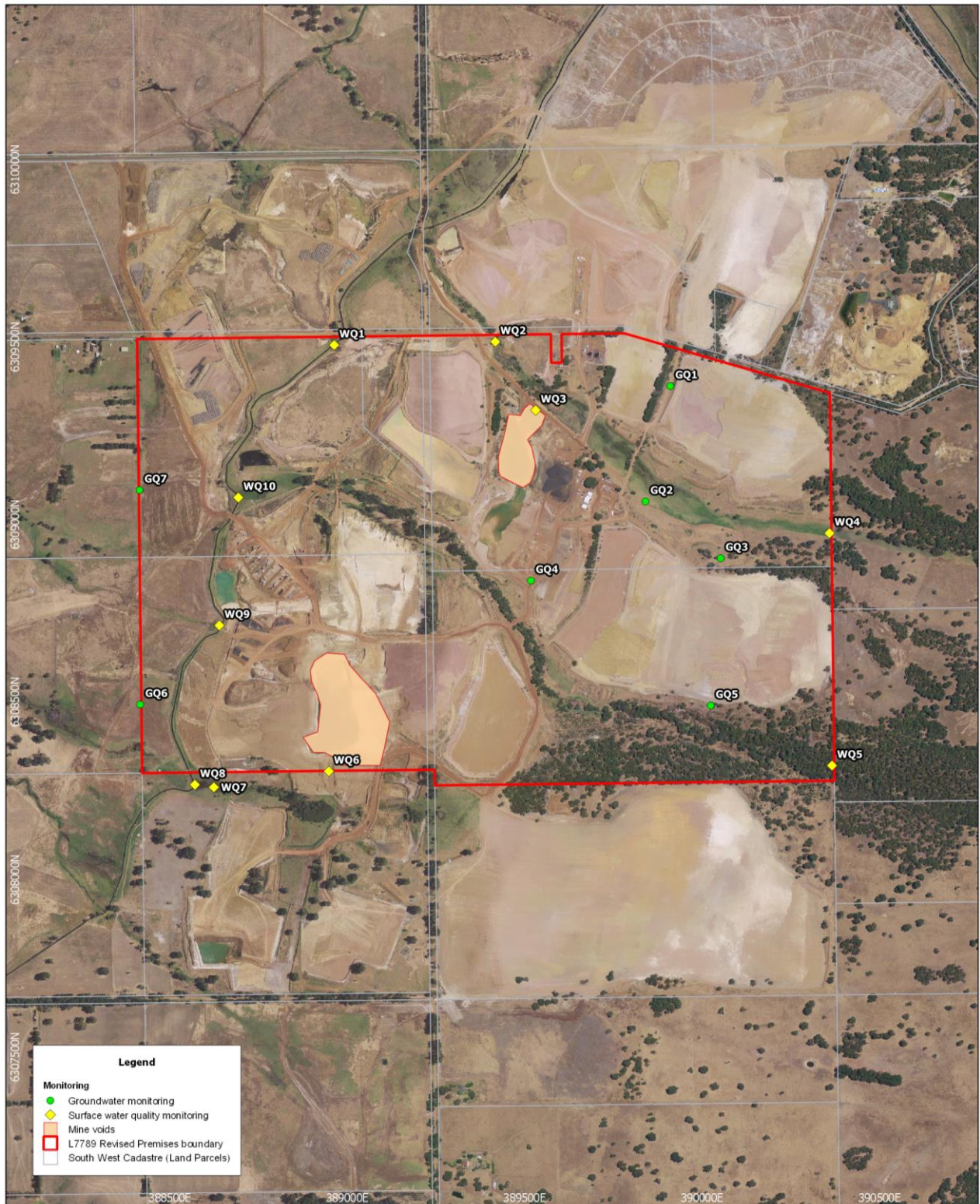
Table 4.2.1: Annual Environmental Report		
Condition or table	Parameter	Format or form¹
-	<i>Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken</i>	None specified
1.3.2	Surface Water Emergency Discharge Plan	
Table 3.2.1	Monitoring of point source emissions to surface water	
Table 3.3.1	Monitoring of ambient air quality	
Table 3.3.3	Monitoring of ambient surface water quality	
Table 3.3.4	Monitoring of ambient groundwater quality, including an appraisal with respect to potential groundwater contamination from metals and acidity	
4.1.2	Compliance	AAGR
4.1.3	Complaints summary	None specified

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L7789/2001/9 – Dardanup Mineral Sands Mine	L7789/2001/1	accessed at www.dwer.wa.gov.au
2	Dardanup Mine Closure Plan (including the Dardanup Mine, Burekup Extension and the Dardanup Southern Extension), Version 7, 31 March 2017. Prepared by Doral Mineral Sands Pty Ltd.	Doral, 2017	accessed at: www.minedexext.dmp.wa.gov.au
3	DWER, February 2018. Memorandum – Dardanup Mineral Sands Mine – Ongoing Post-closure risks	DWER, 2018	DWER internal document DMO3380
4	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	DER, 2015a	accessed at www.dwer.wa.gov.au
5	DER, February 2017. <i>Guidance Statement: Risk Assessment</i> . Department of Environment Regulation, Perth.	DER, 2017a	
6	DER, February 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	DER, 2017b	

Schedule 1: Maps

Premises map and monitoring locations



DARDANUP MINERAL SANDS MINE
 Revised Premises map and monitoring locations

 Government of Western Australia
 Department of Water and Environmental Regulation

The Department of Water and Environmental Regulation does not guarantee that this map is without flaw of any kind and disclaims all liability for any errors, loss or other consequence which may arise from relying on any information depicted.