Amendment Report

Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L7712/2001/8
Choose an item.	Doral Mineral Sands Pty Ltd
ACN	096 342 451
File Number	DER2015/000766-1
Premises	Picton Mineral Separation Plant Lot 503 and 501 Harris Road Legal description – Lot 503 on Deposited Plan 421997 and Lot 501 on Diagram 75572 As defined by the Premises maps attached to the Revised Licence
Date of Report	6 July 2023
Proposed Decision	Revised licence granted

Courtney Henry

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A/MANAGER RESOURCES INDUSTRIES REGULATORY SERVICES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L7712/2001/8 is held by Doral Mineral Sands Pty Ltd (Licence Holder) for the Picton Dry Separation Plant (the Premises), located at 15 Harris Road, PICTON WA.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the Premises. As a result of this assessment, Revised Licence L7712/2001/8 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 31 March 2023, the Licence Holder submitted an application to the department to amend Licence L7712/2001/8 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The premises currently receives Heavy Mineral Concentrate (HMC) from the Yalyalup and Keysbrook Mines and further separates the minerals into the individual products, namely Ilmenite, Zircon and Leucoxene. The site identified an opportunity for the treatment of a low volume stream of Leucoxene which was low in saleable value due to pyrite containing impurities.

The Licence holder proposes the introduction of a flotation circuit to remove the impurities and improve saleable value of the product. The flotation circuit will use Xanthate solution to remove the pyrite contamination, greatly increasing the value of the material.

Construction activities will consist of the installation of offsite fabricated steel work and fixings for the creation of a partially enclosed shed containing processing equipment within the confines of the existing Picton Dry Separation Plant.

Civil works will include the removal of existing concrete pad with the installation of new footings and bunded concrete pads and drainage.

Structural installations will include the installation of structural steelwork and colourbond cladding and allowing for suitable natural and powered ventilation as required. Being a wet process, no dust extraction is required.

Mechanical installations will include the installation of mechanical equipment, hoppers, pumps and associated pipework.

Process installation includes the installation of mineral separation equipment, flotation cell and separator, flotation and frother (surfactant) reagent storage and associated pipework.

The applicant has stated that environmental commissioning is not applicable to this project, and that existing emission controls for the site will remain unchanged.

The flotation plant will operate in coordination with the existing operations on a campaign basis of scheduled 10 days per campaign with a planned 10 campaigns per year (dependent on volume of pyrite containing Leucoxene).

Two waste products will result from the floatation circuit, that being a pyrite solid and water surplus.

The pyrite waste material is estimated to be generated at a rate of 1.5% of the leucoxene process feed. The materials shall be removed from site and disposed in accordance with

DWER's (2019) Landfill Waste Classification and Waste Definitions 1996 (as amended 2019) to an appropriately licenced landfill facility. Classification of the pyrite waste material has shown it is suitable for disposal as Class 3 waste. Dardanup Landfill have indicated they can receive the waste. Prior to removal from site, the pyrite solids will be stored in bulka bags and transferred to the Mineral Storage Shed until collected by the waste contractor. The Mineral Storage Shed has contained water/runoff within a sump which will be pumped back to the flotation pond.

The process is designed to reuse water during each campaign, and from one campaign to the next. Although being largely a closed water circuit, the flotation circuit has a low flow offtake of water which will be directed to wastewater holding tanks. Monitoring for carbon disulphide will be conducted at these tanks which will determine whether it can be discharged into the closed water circuit of the Picton process water dams. Should levels be found unacceptable to discharge to the ponds, the waste water will be directly removed from the tanks by licenced controlled water contractor for disposal to an appropriately licenced facility at Nambellup.

The flotation circuit plant will be contained within a purpose designed concrete bunded area within an enclosed structure.

Storage Area

There is no change to the current HMC storage or tonnages in this amendment. HMC is delivered to the site damp to the existing HMC pad (not inside a storage shed). Dry products are stored inside an enclosed shed.

However, a new temporary storage shed (Mineral Storage Shed) will be installed to store the damp leucoxene product (product from flotation plant). There is no expected increase in volume of stored material at the site. The material is stored in this area until being reprocessed within the Picton Dry Plant via the dryer and separation equipment, as would be for routine leucoxene separation. The storage area will have a sump for collection of water/runoff which will be recycled back to the flotation plant. There are no changes to contaminated stormwater management or dust management.

Table 1 below outlines the throughput of the existing Licence.

Table 1: Throughput capacity

Category	Current throughput capacity	Proposed throughput capacity
8 – Mineral sands mining or processing	350,000 tonnes per annual period	350,000 tonnes per annual period (no change)

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction/operation which have been considered in this Amendment Report are detailed in

Table 2 below.

Table 2 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Dust	Removal of existing concrete pad and installation of new footing, pad, drainage and bunding. Installation of off-site fabricated infrastructure and general construction	Air/windborne pathway	Dust is not anticipated to be generated during construction which involves the installation of equipment for the new storage area (to be used for damp leucoxene product). No additional dust is expected upon operation of the flotation circuit. No additional dust is expected from the storage of the damp leucoxene product. It will be stored undercover in the new storage area. There is no increase in product volume, or product type being stored at the site. Existing licenced dust controls include: • Dust extraction baghouse stacks A1 and A2 monitoring; and • Site ambient dust monitoring
Noise	Removal of existing concrete pad and installation of new footing, pad, drainage and bunding. Installation of off-site fabricated infrastructure and general construction	Air/windborne pathway	The applicant has stated that there will be no additional noise generated during construction as there is minimal earthwork required to pour concrete footings as the pilot plant is an extension within the existing footprint of the operational plant.
Contaminated stormwater	Flotation circuit water and mineral storage area	Overland runoff to surface water	The flotation circuit plant will be contained within a purpose designed and built concrete bunded area within an enclosed structure. The footprint of the containment is 66m^2 with a containable volume of 11m^3. The maximum storage of all holding hoppers etc within the circuit is 6.5m^3. Therefore the volume of bunding is sufficient. Storage area of the damp leucoxene product will be within a new shed. The storage area contains a sump for the collection of any water/runoff which will be recycled back to the flotation plant. The premises has an existing underground and open channel stormwater drainage and collection system which collects runoff.

Emission	Sources	Potential pathways	Proposed controls
			Collected stormwater is directed via the drainage system to a biofilter dam or drop-out sump for treatment and disposal or reuse as per current licence conditions.
Flotation circuit wastewater	Flotation circuit water	Direct discharge to land and/or surface water via overtopping	Any excess water not reused within the circuit will be held in 2x10L wastewater tanks adjacent to the process water dams. Water held in the tanks is monitored and tested for carbon disulphide (CS_2) levels prior to being released to process water dam. If levels are found to be higher than 20µg/L (default guideline value from ANZECC & ARMCANZ 2000 guidelines), then the water will be removed and taken off-site by a licenced controlled waste carrier for disposal at a licenced facility. Process water ponds are HDPE lined with permeability of at least 1 x 10^{-9} m/s and 300 mm freeboard maintained with daily inspections.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 3 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental siting* (DWER 2020)).

Table 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Nearest industrial receptor	Approximately 280 m east of the premises boundary
Industrial receptor	Approximately 360 m north-west of the premises boundary
Industrial receptor	Approximately 380 m south-east of the premises boundary
Industrial receptor	Approximately 390 m south-west of the premises boundary
Industrial receptor	Approximately 390 m south of the premises boundary
Environmental receptors	**Distance from prescribed activity**
East Picton Main Drain	Approximately 15 m southwest of the operational areas and dividing the premises into two land areas.

	Drains to Ferguson River approximately 100 m south of the premises.
Banksia Dominated Woodlands of the Swan Coastal Plain IBRA Region	Approximately 100 m south of operational areas and 15 m south of the premises boundary.

Figure 1: Distance to sensitive receptors

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The Revised Licence L7712/2001/8 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Mineral sands processing.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4. Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Removal of existing concrete pad and installation of new footing, pad, drainage and bunding. Installation of off-site fabricated infrastructure and general construction	Dust	Air/windborne pathway causing impacts to health and amenity	Surrounding industrial receptors, closest being 280m east of the premises	Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	No conditions	Dust emissions are expected to be limited during the installation of the flotation circuit and new storage area. No conditions are required.
	Noise			Refer to Section 3.1	C = Slight L = Unlikely **Low Risk**	Y	No conditions	Excess noise not expected to be generated during installation of the flotation circuit. *Environmental Protection (Noise) Regulations 1997* apply.
Operation								
Unloading, loading and storage of heavy mineral concentrate Vehicle movement	Dust	Air/windborne pathway causing impacts to health and amenity	Surrounding industrial receptors, closest being 280m east of the premises	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Existing conditions relating to dust considered adequate	The flotation circuit will not increase dust generation during operation, therefore, overall risk assessment remains the same as previous licence which is Medium risk. Existing conditions remains adequate to manage dust emissions. No change in risk to dust emissions from

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
								storage of Leuxocene product, as storage will be under cover and the material is damp. Existing conditions apply.
	Contaminated stormwater from storage area	Overland runoff	East Picton Main Drain approximately 15 m southwest of premises	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 1	The Delegated Officer is satisfied that the new storage area for the damp leucoxene product contains adequate stormwater controls. Condition 1 includes infrastructure requirements for the new storage area to ensure it is installed correctly with sumps to capture any unlikely contaminated stormwater
Operating of separation of HMC including flotation circuit	Stormwater contaminated with flotation circuit water	Overland runoff	East Picton Main Drain approximately 15 m southwest of premises	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Existing conditions 4 – 6 are considered adequate	The Delegated Office is satisfied existing conditions relating to infrastructure maintenance are adequate to manage potential stormwater emissions. No additional conditions are required.
	Water from wastewater tanks	Overtopping of process water ponds	East Picton Main Drain approximately 15m	Refer to Section 3.1	C = Moderate L = Unlikely	Y	Condition 6, 14 and 15	Applicant proposed control of monitoring wastewater from tanks prior to

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
			southwest of premises		**Medium Risk**			discharge to process ponds for carbon disulphide has been included into the licence. Only water with levels below 20µg/L may be discharged to the ponds. If levels are above, the water must be removed from site and disposed of at an appropriately licenced facility.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on 22 June 2023	Refer to Appendix 1	Refer to Appendix 1

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 6: Summary of licence amendments

Condition no.	Proposed amendments
Premises details	Premises address updated to reflect correct legal tenure
1	Condition 1 added to licence to outline flotation circuit plant and associated infrastructure installation requirements
2 and 3	Conditions 2 and 3 added to the licence to ensure compliance of infrastructure requirements is achieved
4	Infrastructure and equipment requirement table amended to add the two new wastewater tanks
6	Waste processing table amended to add water from wastewater tanks only to be discharged to process ponds if carbon disulphide levels are below 20 µg/L
14	Table 9 amended to include carbon disulphide monitoring of wastewater tanks
15	Condition 15 added to ensure water from wastewater tanks with levels of carbon disulphide over 20 µg/L is taken offsite for correct disposal.
General	Condition, table and figure numbers updated
Schedule 1	Figure 2 updated to include location of new infrastructure

References

1. ANZECC & ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*
2. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
4. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Premises details/legal description	The applicant has been made aware that Bunbry City Council initiated title change occurred in 2021. Lots 6 and 500 were amalgamated tobecome Lot 503. The new certificate of title has been submitted with the Premises details as follows: *Picton Mineral Separation Plant* *Lot 503 and 501 Harris Rd* *Picton WA 6168* **Legal Description**: *Lot 503 on deposited plan 421997 ad Lot 501 on diagram 75572*	DWER records and Licence L7712/2008/1 updated
Table 2 in Licence	The applicant identified an error in table two. The volume of water tanks should be 10 000 L and not 10 L.	Error corrected.
Applicant was required to confirm if the HMC storage area will remain unchanged. Also were required to clarify proposed storage area shown in site layout figure and to inform any new infrastructure/material or volumes are being installed/stockpiled in the area. If yes, please provide details of activities/materials, including implications for current contaminated stormwater and dust	The applicant has advised that there is no change to current HMC storage or tonnages. HMC is delivered damp to the existing HMC pad (not inside a shed). Dry products are stored inside the enclosed shed. The proposed 'mineral storage' area is under cover and will house the damp leucoxene product with no expected increase in HCM volumes. The under cover area will be a dome structure which sits on top of sea containers. The storage area has a sump for collection of water/runoff which will be recycled back to the flotation plant. Due to the material being damp, it shouldn't pose a dust problem. There will be no changes to contaminated stormwater or dust management.	The information has been included into the decision report and risk assessment.

Condition	Summary of Licence Holder's comment	Department's response
management.		

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)					
Application type					
Amendment to licence	☒	Current licence number:	L7712/2001/8		
		Relevant works approval number:		N/A	☒
Date application received		31/03/23			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Doral Mineral Sands Pty Ltd			
Premises name		Picton Dry Separation Plant			
Premises location		15 Harris Road, PICTON WA 6229			
Local Government Authority		City of Bunbury			
Application documents					
HPCM file reference number:		DER2015/000766			
Key application documents (additional to application form):		Application form (A2167875) Supporting documentation (A2167873)			
Scope of application/assessment					
Summary of proposed activities or changes to existing operations.		Licence amendment to include a flotation plant (and associated infrastructure) to existing operations.			

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	**Assessed production or design capacity**	**Proposed changes to the production or design capacity (amendments only)**
Category 8: Mineral sands mining or processing	350,000 tonnes per annual period	No change

Legislative context and other approvals		
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☒	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:

Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Existing licence valid
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	Proposal within existing approvals
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☐ No ☒	Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☐ No ☒	Proposal will not create any on-site discharges
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☐ No ☐ N/A ☒
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☐ No ☒	N/A
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	N/A

Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	N/A
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*? Yes ☐ No ☒		Classification: N/A Date of classification: N/A