



**Licence Number** L7712/2001/8

**Licence Holder** Doral Mineral Sands Pty Ltd  
**ACN** 096 342 451

**File Number:** DER2015/000766

**Premises** Picton Mineral Separation Plant  
500 Harris Road  
PICTON WA 6229  
Legal description –  
Lot 6 on Diagram 61381 and Lot 500 on Diagram 75572

**Date of Amendment** Friday, 2 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* (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 and follows.

  
**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
AS 3580.9.3	refers to the Australian Standard AS 3580.9.3 <i>Methods for sampling and analysis of ambient air – Determination of total suspended particulates (TSP) – High volume sampler gravimetric method</i>
averaging period	refers to the time over which a limit is measured or a monitoring result is obtained
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 <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a>
CO	Carbon monoxide
Decision Document	refers to the Decision Document prepared for Works Approval W5412/2013/1, attached as Appendix 2 to this Notice
Delegated Officer	an officer under section 20 of the EP Act
DWER	Department of Water and Environmental Regulation
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
freeboard	refers to the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point
Licence Holder	as specified at the front of this Notice
HMC	Heavy Mineral Concentrate
MZI final tails	refers to the waste and sand tailings from processing HMC sourced from the Keysbrook Mineral Sands Mine
Notice	refers to this document
normal operating conditions	refers to any operation of a particular process (including abatement equipment) excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring;
NO <sub>x</sub>	refers to oxides of nitrogen, calculated as the sum of nitric oxide and nitrogen dioxide and expressed as nitrogen dioxide
ppm	parts per million
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
Spot sample	refers to a discrete sample representative at the time and place at which the

	sample is taken
SO <sub>2</sub>	Sulfur dioxide
stack test	refers to a discrete set of samples taken over a representative period under normal operating conditions
STP dry	refers to standard temperature and pressure (0°C and 101.325 kilopascals, respectively), dry
TSP	Total Suspended Particulates
Quarterly	refers to the 4 inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December in the same year
USEPA	means United States (of America) Environmental Protection Agency;
USEPA Method 5	means the USEPA Method 5 <i>Determination of Particulate Matter Emissions from Stationary Sources</i> ;
USEPA Method 6	means the USEPA Method 6 <i>Determination of Sulfur Dioxide Emissions from Stationary Sources</i>
USEPA Method 7E	means the USEPA Method 7E <i>Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyser Procedure)</i>
µS/cm	micro Siemens per centimeter
W5412	Works Approval W5412/2013/1

## 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.

This Notice is limited to changes pertaining to the dry plant upgrade (MZI annexe) works completed under Works Approval W5412/2013/1, and an upgrade to the fluid bed dryer. No changes to other aspects of the Existing Licence have been requested by the Licence Holder.

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)*

## Amendment description

### Dry Plant Upgrade

The Licence Holder has completed plant upgrades under Works Approval W5412/2013/1 at the Picton Mineral Separation Plant and has now applied to commence operations under the Existing Licence.

The upgrade included construction of an annexe to the existing plant to house additional separation equipment and an additional dust extraction baghouse and stack. The upgrade was built under an arrangement with MZI Resources' subsidiary company, Keysbrook Leucoxene Pty Ltd, to process the heavy mineral concentrate (HMC) from the newly established mine at Keysbrook. Construction works commenced in February 2015 and commissioning was completed at the end of that year.

Changes proposed to the Existing Licence, as assessed under W5412 include:

- an increase to the Premises' design capacity from 250,000 to 350,000 tonnes per year;

- adding the new baghouse exhaust stack as an authorised discharge point, with a limit on particulate concentration on the discharge, consistent with the existing baghouse stack limit;
- adding the new baghouse stack to the existing air emissions monitoring program;
- ensuring contaminated stormwater is collected and treated to prevent discharging contaminants to the Ferguson River; and
- updating off-site discharge criterion for stormwater.

#### Fluid bed dryer upgrade

The Licence Holder proposes to upgrade the fluid bed mineral dryer within the existing plant, to allow for increased temperatures and improved mineral drying efficiencies within the plant.

The proposed dryer is gas-fired, and comprises a nozzle-mix burner with designed low emissions (<80 ppm NO<sub>x</sub>; <50 ppm CO, no particulates), a main combustion air fan and a fluidizing air fan.

## Amendment history

Table 2 provides the amendment history for L7712/2001/8.

**Table 2: Licence amendments**

Instrument	Issued	Amendment
L7712/2001/7	25/08/2011	Licence re-issued for 3 years.
W5412/2013/1	28/06/2013	Works approval for upgrading the plant in preparation for processing HMC from the Keysbrook mine.
L7712/2001/8	28/08/2014	Licence re-issued for 5 years. Converted to new licence format.
W5412/2013/1	27/11/2014	Amendment to extend the commissioning plan submission date.
L7712/2001/8	02/02/2018	Amendment Notice 1 – authorise upgrades under W5412 and fluid bed dryer upgrade (this Notice).

## Risk assessment

- DWER has previously assessed the risk of the dry plant upgrade via W5412 as granted on 27 June 2013. The Decision Document outlining the risk assessment is attached as Appendix 2. The previous Decision Document has been reviewed and the risk assessment is considered to remain valid; and
- The fluid bed dryer upgrade will not increase the material environmental risk of air emissions, as the modern and efficient burner system (together with the existing baghouses) is expected to result in improved emissions.

## Decision

Changes proposed to conditions in the Existing Licence – as assessed under W5412, remain valid with the following alterations:

- Removal of draft condition 1.2.7, referencing management of stormwater in accordance with a Stormwater Management Plan (superseded by Condition 1.3.5);
- Removal of draft condition 2.8.1, referring to proposed noise monitoring requirements (risk is low based on distance to noise sensitive receptors and surrounding industry);

Redundant conditions – have been removed from the Existing Licence, including:

- Conditions 1.2.1 – 1.2.5 (not enforceable – not sufficiently clear or certain);
- Condition 2.2.3 (not enforceable or risk-based);

- Conditions 2.6.1 – 2.6.2 (not valid, enforceable or risk based);
- Condition 2.8.1 (not valid, enforceable or risk-based); and
- Condition 5.1.2 (not valid, enforceable or risk-based).

Criterion for stormwater discharges – the Existing Licence contains emission targets only, for the off-site discharge of stormwater. As part of this amendment, the targets have been replaced with upper limits, consistent with background water quality in the Ferguson River (receiving environment), to ensure that discharges will not present an unacceptable risk.

Based on water quality data taken from surrounding surface waters – Ferguson River, Picton Drain and Preston River (Doral, 2018) – the targets for pH and suspended solids from the Existing Licence are appropriate as upper limits for discharges from the Premises. The existing target for electrical conductivity would be too low if applied as a limit, based on the existing data. A limit of 1,500 µS/cm has therefore been set – this is well above the upper levels measured during the autumn/winter period when the rivers have high flow (average 350 – 1,100 µS/cm), but significantly lower than background during the spring/summer period when the rivers have low flow (average 650 – 2,600 µS/cm).

Based on existing data, the trend of low volumes of off-site discharges is expected to continue, with discharges predominantly only required during the winter months.

The proposed fluid bed dryer upgrade – the Existing Licence provides the necessary authorisations regarding the upgrade works and subsequent operation (no changes required).

## Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 25 January 2018 and provided no additional comments.

## Amendment

1. The expiry date of the Existing Licence is amended from the date below:

*Wednesday, 4 September 2019*

To the new date below:

*Monday, 4 September 2034*

2. The table on the covering page 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:

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
8	Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.	5,000 tonnes or more per year	<del>250,000 tonnes</del> <u>350,000 tonnes</u> per annual period

3. The Existing Licence is amended by the deletion of the following Conditions:

1.2.1 Nothing in this Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:

- (a) pollution;
- (b) unreasonable emission;

- (c) discharge of waste in circumstances likely to cause pollution; or
- (d) being contrary to any written law.

1.2.2 The Licensee shall operate and maintain all pollution control and monitoring equipment to the manufacturer's specification or any relevant and effective internal management system.

1.2.3 The Licensee, except where storage is prescribed in section 1.3, shall ensure that environmentally hazardous materials are stored in accordance with the code of practice for the storage and handling of dangerous goods.

1.2.4 The Licensee shall immediately recover, or remove and dispose of spills of environmentally hazardous materials outside an engineered containment system.

1.2.5 The Licensee shall:

- (a) implement all practical measures to prevent stormwater run-off becoming contaminated by the activities on the premises; and
- (b) treat contaminated or potentially contaminated stormwater as necessary prior to being discharged from the Premises.

4. Table 1.3.1 and Condition 1.3.2 of the Existing Licence is replaced by the table below:

<b>Table 1.3.1: Containment infrastructure</b>		
<b>Infrastructure</b>	<b>Material</b>	<b>Infrastructure requirements</b>
Process water ponds (3)	Process water	<ul style="list-style-type: none"> <li>• Lined to achieve a permeability of least <math>1 \times 10^{-9}</math> m/s</li> <li>• A minimum top of embankment freeboard of 300 mm is maintained</li> </ul>
Biofilter dam	Contaminated stormwater	Earthen lined
Drop-out sump		<ul style="list-style-type: none"> <li>• Weir boards on overflow point, to control (if required) flow and/or storage capacity</li> <li>• Earthen lined</li> </ul>

5. The Existing Licence is amended by the deletion of the following Condition:

1.3.4 The Licensee shall implement the Stormwater Management Plan entitled 'Stormwater Management Plan – Picton Dry Plant – Doral Mineral Sands Pty Ltd – 2013'.

6. The Existing Licence is amended by the insertion of the following Condition:

1.3.5 The Licensee shall maintain mechanisms to ensure that stormwater from the following areas are diverted to either the biofilter dam or the drop-out sump, for treatment and disposal or reuse:

- (a) HMC, product and tailings storage areas;
- (b) sealed plant/workshop/laboratory areas; and
- (c) HMC unloading road hopper ramp.

7. Table 2.2.1 of the Existing Licence is amended by the insertion of the red text shown in underline below:

<b>Table 2.2.1: Emission points to air</b>			
<b>Emission point reference</b>	<b>Emission point</b>	<b>Emission point height (m)</b>	<b>Source, including any abatement</b>
A1	Baghouse exhaust stack 1	4.8	Collects dust from the dry separation plant and leucoxene separation circuit via baghouse
<u>A2</u>	<u>Baghouse exhaust stack 2</u>	<u>3.0</u>	<u>Collects exhaust and dust from the primary dryer and secondary reheater</u>

8. Table 2.2.2 of the Existing Licence is amended by the insertion of the red text shown in underline below:

<b>Table 2.2.2: Point source emission limits to air</b>				
<b>Emission point reference</b>	<b>Parameter</b>	<b>Limit</b>	<b>Averaging period</b>	<b>Method</b>
A1 <u>-A2</u>	TSP	<30 mg/m <sup>3</sup>	Stack test (60 minute average)	USEPA Method 5 or 7E

9. The Existing Licence is amended by the deletion of the following Condition:

2.2.3 The Licensee shall target point source emissions to air at or below the levels specified in Table 2.2.3.

<b>Table 2.2.3: Point source emission limits to air</b>				
<b>Emission point reference</b>	<b>Parameter</b>	<b>Target</b>	<b>Averaging period</b>	<b>Method</b>
A1	TSP	<20 mg/m <sup>3</sup>	Stack test (60 minute average)	USEPA Method 5 or 7E

10. Table 2.3.3 and Condition 2.3.2 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:

2.3.2 The Licensee shall ~~target~~ not cause or allow point source emissions to surface water that do not meet the limits ~~to meet the levels~~ specified in Table 2.3.3.

<b>Table 2.3.3: Point source emission limits to surface water</b>			
<b>Emission point reference</b>	<b>Parameter</b>	<b>Target Limit</b>	<b>Averaging period</b>
W1	pH	6.5 (lower limit) 8.0 (upper limit)	Spot sample
	Total suspended solids	80 mg/L ( <u>upper limit</u> )	
	Electrical conductivity	1,090 µS/cm <u>1,500 µS/cm (upper limit)</u>	

11. The Existing Licence is amended by the deletion of the following Conditions:

2.6.1 The Licensee shall use all reasonable and practical measures to prevent and where that is not practicable to minimise dust emissions from the Premises.

2.6.2 The Licensee shall ensure that no visible dust generated by activities on the Premises crosses the boundary of the Premises.

2.8.1 The Licensee shall measure the noise levels at the premises boundary at the monitoring locations depicted in Schedule 1, at least every six months.

12. Table 3.2.1 of the Existing Licence is amended by the insertion of the red text shown in underline below:

<b>Emission point reference</b>	<b>Parameter</b>	<b>Unit<sup>1</sup></b>	<b>Averaging period</b>	<b>Frequency<sup>2</sup></b>	<b>Method</b>
<u>A1 – A2</u>	TSP	mg/m <sup>3</sup>	Stack test (60 minute average)	Annually	USEPA Method 5
	SO <sub>2</sub>				USEPA Method 6
	<u>NO<sub>x</sub></u>				<u>USEPA Method 7E</u>

Note 1: All units are referenced to STP dry.

Note 2: Monitoring shall be undertaken to reflect normal operating conditions.

13. Table 3.3.1 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:

<b>Emission point reference</b>	<b>Parameter</b>	<b>Unit</b>	<b>Averaging period</b>	<b>Frequency</b>
W1	pH	-	Spot sample	Weekly, whilst discharging
	Total suspended solids	mg/L		
	Salinity	mg/L		
	<u>Electrical conductivity</u>	<u>µS/cm</u>		

14. The Existing Licence is amended by the insertion of the following Conditions:

3.4.1 The Licensee shall undertake the monitoring in Table 3.4.1 according to the specifications in that table.

<b>Monitoring point reference</b>	<b>Process description</b>	<b>Parameter</b>	<b>Unit</b>	<b>Frequency</b>	<b>Method</b>
-	Processing of ore	Amount of ore processed	tonnes	Annually	None specified
-	Secondary process tailings dispatched	Amount of MZI final tails dispatched from the Premises		Monthly	

15. Table 3.8.1 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:

3.8.1 The Licensee shall undertake the monitoring in Table 3.8.1 according to the specifications in that table.

<b>Monitoring point reference</b>	<b>Parameter</b>	<b>Target Limit</b>	<b>Unit</b>	<b>Averaging period</b>	<b>Frequency</b>	<b>Method</b>
AQ1 – AQ3	TSP	260	µg/m <sup>3</sup>	24 hours	Monthly	AS 3580.9.3

Note 1: Monthly during the period 1 September and 31 May the following year.



16. The Existing Licence is amended by the insertion of the following Condition:

3.8.3 The Licensee is exempt from compliance with the limit specified in Table 3.8.1 if in the case of an event in Table 3.8.3:

- (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.

<b>Table 3.8.3: Management actions</b>			
<b>Monitoring point reference</b>	<b>Event/action reference</b>	<b>Event</b>	<b>Management action</b>
AQ1 – AQ3	EA1	Exceedance of the limit specified in Table 3.8.1	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.

17. The Existing Licence is amended by the deletion of the following Condition:

5.1.2 The Licensee shall ensure that:

- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all the conditions of the Licence that relate to the tasks which that person is performing.

18. Table 5.2.1 of the Existing Licence is amended by the deletion of the text shown in strikethrough below:

<b>Table 5.2.1: Annual Environmental Report</b>		
<b>Condition or table</b>	<b>Parameter</b>	<b>Format or form</b>
-	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	None specified
<del>2.8.1</del>	<del>Noise levels</del>	<del>None specified</del>
Table 3.2.1	Sulfur dioxide, nitrogen oxides, particulates	<del>AR1</del> None specified
Table 3.3.1	Salinity, suspended solids, pH, <del>electrical conductivity</del>	<del>WR1</del> None specified
<del>Table 3.4.1</del>	<del>Process monitoring</del>	None specified
Table 3.8.1 – 3.8.2	Ambient monitoring	
<del>Table 3.8.3</del>	<del>Summary of investigations into exceedances of the limit specified in Table 3.8.1</del>	
5.1.2	Compliance	Annual Audit Compliance Report (AACR)
5.1.3	Complaints summary	None specified

19. The Existing Licence is amended by the deletion of the following Condition:

5.2.3 The Licensee shall submit the information in Table 5.2.2 to the CEO according to the specifications in that table.

<b>Table 5.2.3: Non-annual reporting requirements</b>				
<b>Condition or table</b>	<b>Parameter</b>	<b>Reporting period</b>	<b>Reporting date (after end of the reporting period)</b>	<b>Format or form</b>
Table 2.3.2	Target exceedances	Quarterly	28 calendar days	ET1
Table 3.8.1	Particulates – target exceedances	Monthly		

## Appendix 1: Key documents

	<b>Document title</b>	<b>In text ref</b>	<b>Availability</b>
1	Works Approval W5412/2013/1 – Picton Mineral Separation Plant Upgrade	W5412/2013/1	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
2	Licence L7712/2001/8 – Picton Mineral Separation Plant	L7721/2001/8	
3	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	DER, 2015a	
4	DER, February 2017. <i>Guidance Statement: Risk Assessment</i> . Department of Environment Regulation, Perth.	DER, 2017a	
5	DER, February 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	DER, 2017b	
6	Doral, January 2018. Electrical conductivity data for surrounding creeks and rivers.	Doral, 2018	DWER records (A1596327)

## Appendix 2: W5412 Decision Document