



## Application for Licence Amendment

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

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<b>Licence Number</b>	L7851/2002/6
<b>Licence Holder</b>	BHP Billiton Iron Ore Pty Ltd
<b>ACN</b>	008 700 981
<b>File Number</b>	DER2013/000925-1
<b>Premises</b>	Mining Area C  Mining Tenement ML281SA  NEWMAN WA 6753  As defined by the Premises maps attached to the Revised Licence
<b>Date of Report</b>	22 January 2024
<b>Decision</b>	Revised licence granted

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## 1. Decision summary

Licence L7851/2002/6 is held by BHP Iron Ore Ltd (Licence Holder) for the Minig Area C Project (the Premises), located at Mining Tenement ML281SA Newman Western Australia.

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 L7851/2002/6 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 10 October 2023, the Licence Holder submitted an application to the department to amend Licence L7851/2002/6 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

#### Category 5

- Replacement of the existing 5 million tonnes per annum (mtpa) relocatable crusher with two fully mobile plants (1 x 2 mtpa and 1 x 3 mtpa). This will not change the approved throughput of 151 mtpa; and
- Enable the fully mobile plants to be relocated within the Prescribed Premises as required provided they are not located within 1 km of the premises boundary.

#### Category 6

- Juna Downs managed aquifer recharge (MAR) scheme:
  - Replace monitoring bore HCF0045M with adjacent bore HCF0019M; and
  - Add the Juna Downs Balance Tank as a contingency discharge point (L3) in the event the tank needs to be drained or overtops.
- South Flank MAR:
  - Update the name of monitoring bore HSFMARREP which has been constructed and renamed as HSF0054M; and
  - Add a new bore (HSF5614M) to replace HSF0054M when it is replaced in FY24.

#### Category 63

- Construction and operation of a new inert landfill at South Flank

#### Category 89

- Construction and operation of a new putrescible landfill at South Flank

This amendment is limited only to changes to Categories 5, 6, 63 and 89 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Categories 12, 52, 53, 73 or 85B have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence

**Table 1: Proposed throughput capacity changes**

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
5	151 000 000 tonnes per annual period	No change	Replacement of the 5 mtpa relocatable plant with two fully mobile crushers (1 x 2 mtpa and 1 x 3 mtpa).
6	34 840 000 tonnes per annual period	No change	Add the Juna Downs balance tank as a contingency discharge point Replace Juna Downs MAR Bore HCF0045 with adjacent bore HCF0019M Rename bore HSFMARREP to HCF0019M Add bore HSF5614M
63	25 000 tonnes per annual period	No change	One new inert facility at South Flank – no change to total throughput
89	5 000 tonnes per annual period	No change	One new putrescible facility at South Flank – no change to total throughput

### 2.2.1 Mobile crushing and screening operations

The proposed replacement of the 5 mtpa relocatable crushing facility with the two fully mobile plants (1 x 2 mtpa and 1 x 3 mtpa) will enable maximum flexibility for ore processing at the facility, to enable the maximum throughput of 151 mtpa to be achieved. Commissioning of the plant is expected to take less than 4 weeks. An environmental commissioning plan has not been submitted to support the application, however the Delegated Officer has determined that a formal environmental commissioning phase and report is not required, as commissioning does not involve testing the integrity of containment infrastructure or optimizing operations (per the Guide to Licensing – DWER 2019). A preliminary assessment determined that the commissioning activities will not present an unacceptable risk to the environment or public health and amenity and can be regulated by operational controls specified on the licence.

The proposed 1 x 2 mtpa crusher will comprise:

- Terex J-1480 Jaw Crusher (C120 Equivalent);
- Terex C-1550 Cone Crusher (HP300 Equivalent);
- Terex 984 screen (horizontal 20 x 6 ft triple deck); and

The proposed 1 x 3 mtpa crusher will comprise:

- Kleemann MC125 Jaw Crusher (C125 Equivalent);
- Kleemann MCO13 Cone Crusher (HP400 Equivalent);
- Kleemann MS23 screen (incline 8 x 2.3 m triple deck).

## 2.2.2 MAR monitoring bore replacement

Juna Downs MAR monitoring bore HCF0045M is often dry and therefore the Licence Holder is unable to undertake water sampling in this bore. They are proposing to replace the bore with the adjacent monitoring bore HCF0019M, which is 7 m south east. This bore usually contains water and is therefore able to provide both water quality and groundwater depth data.

The Juna Downs MAR uses a balance tank as part of the rejection scheme. The Licence Holder is seeking to add this tank as a contingency discharge location should the tank need to be drained or should it overflow. Any release of water from the tank will not extend beyond the Packsaddle Ponds Wetting Front Limit located approximately 1 km south of the tank.

## 2.2.3 South Flank inert and putrescible landfill facilities

The licence holder is seeking to construct and operate a new inert landfill at South Flank to allow for the disposal of inert waste generated from the South Flank mining operations. In addition, a construction and operation of a new putrescible landfill at South Flank is proposed for the ongoing management of putrescible waste.

The putrescible landfill will be constructed with a series of trenches with the following maximum dimensions:

- Up to four trenches, length of 400 m, width 25 m and depth 2.5 m; and
- Location 2: up to five trenches length of 500 m, width 25 m and depth 2.5 m.

To extend landfill life additional cells may be installed on top of the original cells once they have reached capacity.

## 2.3 Part IV of the EP Act

Ministerial Statement MS1072 dated 20 February 2018 approved the implementation of a revised proposal to mine the Mining Area C Northern Flank and Southern Flank orebodies. Water usage and dewatering requirements were removed from MS491 as a Part IV Key Characteristic in March 2014 on the grounds that 'conservation values are managed under the Life of Mine Environmental Management Plan and dewatering and discharge can be managed under other legislation'.

## 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 and operation which have been considered in this Amendment Report are detailed in

Table 2 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
<b>Category 5</b>			
Dust	Replacement, commissioning and operation of two fully mobile crushing plants (1 x 2mtpa and 1 x 3 mtpa)	Air/windborne pathway	<p>The following dust controls will be implemented during construction/installation:</p> <ul style="list-style-type: none"> <li>-the facility will not be located within 1 k of the prescribed premises boundary;</li> <li>- watering of roads and cleared areas during site preparation works for the installation of the crusher, to minimise dust;</li> <li>-routine maintenance and housekeeping will be undertaken to avoid accumulation of waste materials that could lead to dust generation;</li> </ul> <p>Employees and contractors will continue to be inducted regarding importance of minimising dust levels.</p> <p>The 1 x 2 mtpa crusher has the following dust controls:</p> <ul style="list-style-type: none"> <li>- Jaw crusher and cone crusher come with dust spray nozzles in strategic position with pipework and manifold.</li> <li>- Cone crusher discharge conveyor will be covered.</li> </ul> <p>The 1 x 3 mtpa crusher has the following dust controls:</p> <ul style="list-style-type: none"> <li>- Jaw crusher and cone crusher come with dust spray nozzles in strategic position with pipework and manifold.</li> <li>- Screen feed conveyor will be covered;</li> <li>- Screen box operates enclosed at top, bottom and discharge chute.</li> </ul>
<b>Category 6</b>			
Rejection water	Juna Downs Balance Tank	Overtopping of balance tank	<p>The Balance Tank Contingency Discharge Point (L3) is not proposed to be used other than in the event the balance tank needs to be drained or in the unlikely even the facility overtops.</p> <p>The wetting front from the facility will not extend beyond the Packsaddle Ponds Wetting Front Limit located approximately 1 km south of the tank.</p>

Emission	Sources	Potential pathways	Proposed controls
<b>Category 5</b>			
<b>Category 63</b>			
Dust	Vehicle movements on unsealed roads	Air/windborne pathway	Dust control on unsealed roads will be managed via the use of water carts
Windblown waste	Inert waste disposal	Direct discharge to land	The facility will be managed in accordance with existing landfill facility conditions (Conditions 1 to 9, 12, 26 and 38).
<b>Category 89</b>			
Dust	Earthworks and vehicle movement	Air/windborne pathway	Dust control on unsealed roads will be managed via the use of water carts. Dust will be managed in accordance with existing licence conditions.
Odour	Putrescible landfill	Air/windborne pathway	Waste will be covered sufficiently in accordance with existing management of landfills (Condition 7).
Leachate	Putrescible landfill	Infiltration through soil to groundwater	This will be managed in same way as existing putrescible landfills (Conditions 1 to 9, 12, 26 and 38)

### 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
Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village	1.5 km from premises boundary.
Juna Downs homestead <i>Screened out of assessment due to separation distance</i>	25 km to WNW of the prescribed boundary
Great Northern Highway	100 m from the premises boundary
Environmental receptors	Distance from prescribed activity
PEC – Priority 3: Coondewanna Flats	200 m from premises boundary. Adequately



<p>((Coondewanna Flats and Wanna Munna Flats)* - Priority 3(i))</p>	<p>managed under MS 1072.</p>
<p>Groundwater</p>	<p>Hamersley – Fractured Rock Aquifer. Measurements taken during previous subterranean fauna surveys demonstrate that the water table is relatively deep throughout the premises, ranging from 26 to 127 metres below top of collar (mbtc) throughout South Flank and the groundwater is fresh, with conductivities at the water table rarely exceeding 1,000 <math>\mu\text{S cm}^{-1}</math> (Bennelongia, 2019).</p> <p>Depth to groundwater in the proposed putrescible landfill area is about 63 m below ground level.</p>
<p>Surface Water</p>	<p>A number of unnamed perennial watercourses flow across the prescribed premises. The prescribed premises also intersects the northern-most section of Coondewanna Flats but is not within the boundary of the Coondewanna Flats Priority Ecological Community (PEC)</p>
<p>Flora and fauna</p>	<p>The premises lies within low woodland (mulga) and hummock grasslands. No significant flora species under EPBC Act have been identified, however 11 DBCA listed Priority Flora species are recoded within the premises.</p> <p>However, any disturbance to priority species will be undertaken in accordance with MS 1072.</p>

## 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 L7851/2002/6 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. mobile crushing and screening plant and landfill facilities.

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 <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
<b>Construction</b>								
Replacement of 5 mtpa relocatable crusher with two fully mobile plants	Dust	Air/windborne pathway causing impacts to health and amenity	Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village Great Northern Highway (visibility issues to traffic)	Refer to Section .3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Condition 12 has been updated to include infrastructure specifications (construction) of the new plants. Condition 39 has been amended to include the requirement of compliance document submission for the construction of the two mobile plants.	N/A
Landfills	Dust	Air/windborne pathway causing impacts to health and amenity	Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village Great Northern Highway (visibility issues to traffic)	Refer to Section .3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Condition 12 has been updated to include the inert and putrescible landfills (construction requirements) Condition 39 has also been updated to ensure the submission of a compliance report following construction is submitted.	N/A
<b>Operation</b>								
Screening and crushing of materials	Dust	Air/windborne pathway causing impacts to health and amenity	Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Existing licence conditions relating to dust apply: Condition 2 – the crusher have been added to Table 2	The DO is satisfied that existing conditions can manage the risk of dust during operation of the

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
			Great Northern Highway (visibility issues to traffic)		C = Moderate L = Possible <b>Medium Risk</b>	Y	Condition 32 – monitoring of ambient air quality	new mobile plants.
Inert and putrescible landfill	Dust	Air/windborne pathway causing impacts to health and amenity	Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village 1.5 km	Refer to Section 3.1	C = Slight L = Rare <b>Low Risk</b>	Y	Condition 2 – the landfills have been added to Table 2 with infrastructure and equipment requirements  Existing landfill management conditions apply: Condition 5 Condition 6 Condition 7 Condition 9 Condition 12 Condition 16	N/A
Putrescible landfill	Odour	Air/windborne pathway causing impacts to health and amenity	Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village 1.5 km	Refer to Section 3.1	C = Minor L = Rare <b>Low Risk</b>	Y	Condition 2 – the landfills have been added to Table 2 with infrastructure and equipment requirements  Existing landfill conditions will manage odour: Condition 6 Condition 7 Condition 12 Condition 16	N/A

Risk Event					Risk rating <sup>1</sup>	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood			
	Windblown waste	Littering and exposure for flora and fauna	Nearby flora and fauna		C = Slight L = Unlikely <b>Low Risk</b>	Y	Condition 2 has been amended for infrastructure and equipment requirement specific to the landfills  Existing landfill management conditions for windblown waste apply: Condition 6 Condition 7 Condition 9 Condition 12 Condition 16	N/A
	Leachate	Seepage to soils and groundwater	Depth to groundwater approximately 63 m		C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Condition 2 has been amended for infrastructure and equipment requirement specific to the landfills  Existing landfill management conditions to prevent leachate apply: Condition 3 Condition 4 Condition 5 Condition 12 Condition 16	N/A
	Contaminated stormwater	Surface runoff	Perennial watercourses		C = Minor L = Unlikely <b>Medium Risk</b>	Y	Condition 2 has been amended for infrastructure and equipment requirement specific to the landfills  Existing landfill management conditions to prevent contaminated	N/A

Risk Event					Risk rating <sup>1</sup> C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions <sup>2</sup> of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							stormwater apply: Condition 12 Condition 16	
Balance tank discharge point as contingency for dewatering	Leakage or spills of water	Direct discharge to surrounding environment	Surrounding soils and surface water	Refer to Section 3.1	C = Moderate L = Unlikely <b>Medium Risk</b>	Y	Existing condition 20 amended to add discharge location L3 Existing condition 21 provides wetting front limit and condition 26 outlines monitoring of the emission points prior to discharge.	The DO is satisfied no further conditions are required relating to the Balance Tank discharge point.

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 17 January 2024	<p>The following minor comments were received:</p> <ul style="list-style-type: none"> <li>Table 11: Row L3 source including abatement column to be updated with "Mine dewater"</li> <li>Table 14: Can L3 be added to the list of monitoring points in Row 3 related to "E Deposit Turkey's nest or at the trunk line prior to the infiltration/sediment basin"</li> <li>Table 17: Replace the reference to HCF0045M to HCF0019M for TDS sampling</li> </ul>	Comments accepted

## 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
2 Table 2	<p>The two fully relocatable crushers have been added to the Site Infrastructure and equipment table. Operational requirements have also been included in this table, including reference to compliance report conditions.</p> <p>The new inert and putrescible landfills have also been added to this table.</p>
12 Table 7	This table lists infrastructure to be constructed, therefore the two fully relocatable crushers have been added, along with the new landfills.
18 Table 9	The change in monitoring bore (HSFMARREP to HSF0054M or HSF5614M) has been updated in the Point source emission limits to groundwater table.
19	The change in monitoring bore (HSFMARREP to HSF0054M or HSF5614M) has been updated in the Management Actions table.

Table 10	
20 Table 11	L3 has been added as an emission point to land.
21 Table 12	L3 has been added as a contingency discharge location
25 Table 13	The change in monitoring bore (HSFMARREP to HSF0054M or HSF5614M) has been updated in the Monitoring of point source emission limits to groundwater table.
26 Table 14	L3 has been added as emissions point to the Monitoring of emissions to land table.
28 Table 16	The change in monitoring bore (HSFMARREP to HSF0054M or HSF5614M) has been updated in the Ambient groundwater limits table as has the replacement of monitoring bore HCF0045M to HCF0019M.
29 Table 17	The change in monitoring bore (HSFMARREP to HSF0054M or HSF5614M) has been updated in the Monitoring of Ambient groundwater limits table as has the replacement of monitoring bore HCF0045M to HCF0019M.
30 Table 18	The change in monitoring bore (HSFMARREP to HSF0054M or HSF5614M) has been updated in the Monitoring following groundwater trigger exceedance table as has the replacement of monitoring bore HCF0045M to HCF0019M.
39 Table 23	Notification requirement table updated to ensure compliance documents for the new landfills are submitted within 7 days of completion of construction.
Figures 1 – 4	Figures 1 – 4 updated to reflect amendments made



## References

1. BHP Iron Ore Pty Ltd, Application to Amend the MAC Environmental Licence L7851/2002/6, October 2023, Perth, Western Australia.
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. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Risk Assessments*, Perth, Western Australia.

