

Amendment Report

Application for Licence Amendment

Part V Division 3 of the Environmental Protection Act 1986

Licence Number	L7851/2002/6
Licence Holder	BHP Iron Ore Pty Ltd
ACN	008 700 981
File Number	DER2013/000925-1
Premises	Mining Area C Project Mining Tenement ML281SA NEWMAN WA 6753

Date of Report	18 November 2021

Decision Revised licence granted

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An officer delegated under section20 of the Environmental Protection Act 1986 (WA)

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1. Decision summary

Licence L7851/2002/6 is held by BHP Iron Ore Pty Ltd (Licence Holder) for the Mining Area C Project (the Premises), located at Mining Area C Project, Mining Tenement ML281SA, NEWMAN WA 6753.

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 operation of the Premises. As a result of this assessment, Revised Licence L7851/2002/6 has been granted.

The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

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 1 July 2021, 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). These amendments include the modifications to Categories 6, 54 and 63 listed below.

On 6 September 2021, the Licence Holder submitted an addendum to the application to include the Category 5 amendments listed below.

The following amendments are being sought:

Category 5:

• Addition of System B and D from works approval W6142/2018/1.

Category 6:

- Making the following monitoring bore changes: Replace the references to monitoring bore HGSL0012M with replacement bores HGSL0012M1 and HGSL0012M2; and
- Adding a note to Table 15 and Table 16 to the affect that that water quality monitoring is not required if a bore is dry.

Category 54:

- Increase the limit of Category 54 by 28 m³/day to a total of 1,138 m³/day to allow for operation of the C50K Biomax Wastewater Treatment Plant (WWTP) constructed under Works Approval W6327/2019/1;
- Add the location of the C50K Biomax WWTP and associated spray field (L21) to Figure 1 and Figure 2; and
- Transfer Stage 2 construction from the works approval onto the Licence.

Category 63:

• Remove the location inert landfill at the MAC Rail Loop from Figure 1 as this has been closed and rehabilitated.

This amendment is limited only to changes to Categories 5, 6, 54 and 63 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Categories 12, 52, 73, 85B and 89 have been requested by the Licence Holder. The Licence Holder is also modified from BHP Billiton Iron Ore Pty Ltd to BHP Iron Ore Pty Ltd.

Table 1 below outlines the proposed changes to the existing Licence.

Category	Current design throughput capacity	Proposed design throughput capacity	Description of proposed amendment
Category 54: Sewage facility	1,110 m³ per day	1,138 m³/day	Increase the limit of Category 54 by 28 m ³ /day to a total of 1,138 m ³ /day to allow for operation of the C50K Biomax WWTP constructed under Works Approval W6327/2019/1

Table 1: Proposed	design or throughput	capacity changes
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2.2.1 Category 5 System B and D

System B and D is to be included onto the licence as part of this amendment, as construction and commissioning has been completed under W6142/2018/1. The infrastructure constructed includes:

System B of W6142/2018/1:

• Dust controls for Stacker 4 Stockpiles along the extension of Conveyor MC314 (MC314 extension).

System D of W6142/2018/1:

- Stacker 4 (ST04) a travelling, slewing and luffing stacker with a 20,000 tph capacity, associated stockyards and Conveyor 484 (CV484);
- Dust controls for ST04 Stockpiles; and
- Stormwater controls for Stockyard 2 CV484.

The Compliance Report was received for this infrastructure on 30 November 2021 and the Commissioning Report was received for this infrastructure on 20 March 2021.

Table 2 shows the dust controls in place for System B & D that are required as part of works approval W6142/2018/1 and the Dust Management and Monitoring Plan that was submitted under condition 6 of works approval W6142/2018/1.

Table 2:	Dust	Control	System	В	&	D
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Infrastructure	DustManagementandDustSuppressionMonitoringPlan (SectionInfrastructure6)EquipmentConstructedRequirementsConstructed		Verification of Dust Suppression Infrastructure
System B			
Conveyor MC314	Dust suppression water cannons, sprays or sprinklers for stockpile surfaces. Sprays can be strategically installed at high dust generation areas. These can include overbelt sprays, chute sprays, boom sprays and capping sprays.	Water sprays have been installed on the conveyor belt associated with ST04. Nine automated dust suppression water cannons have been installed along the extension of Conveyor MC314, which are able to wet the stockpiles and surrounding areas.	These controls were verified during commissioning Table 1 (Page 1) and Figures 2 and 3 (Pages 4 and 5) of the report <i>W6142 Commissioning</i> <i>Compliance Report (Category</i> <i>5 Infrastructure) Systems B</i> <i>and D.</i>

		Construction confirmed in Table 1 (Page 3) and Figures 6 and 7 (Pages 13 and 14) of the report Works Approval W6142/2018/1 – South Flank– Compliance Report Systems B and D).	
System D	Γ	Γ	
Stacker 4 ST04	Bulk Ore Conditioning (BOC) systems dust along conveyors to control the moisture in the ore by targeting the optimum moisture level.	Bulk ore conditioning sprays have been installed along Conveyor 484 (CV484). Luffing is enabled on Stacker 4. Construction confirmed in Table 1 (Page 3) and Figure 9 (Page 16) of the report Works Approval W6142/2018/1 – South Flank– Compliance Report Systems B and D).	These controls were verified during commissioning Table 1 (Page 1) of the report <i>W6142</i> <i>Commissioning Compliance</i> <i>Report (Category 5</i> <i>Infrastructure) Systems B</i> <i>and D.</i>
Stacker 4 ST04 Stockpiles	Dust suppression water cannons, sprays or sprinklers for stockpile surfaces Sprays can be strategically installed at high dust generation areas. These can include overbelt sprays, chute sprays, boom sprays and capping sprays.	Water sprays have been installed on the conveyor belt associated with ST04. Nine automated dust suppression water cannons have been installed along the extension of Conveyor MC314, which are able to wet the stockpiles and surrounding areas. Construction confirmed in Table 1 (Page 3) and Figures 6 and 7 (Pages 13 and 14) of the report <i>Works Approval</i> <i>W6142/2018/1 – South</i> <i>Flank– Compliance</i> <i>Report Systems B and D</i>).	These controls were verified during commissioning Table 1 (Page 1) and Figures 2 and 3 (Pages 4 and 5) of the report <i>W6142 Commissioning</i> <i>Compliance Report (Category</i> <i>5 Infrastructure) Systems B</i> <i>and D.</i>
Conveyor 484 (CV484)	Dust suppression water cannons, sprays or sprinklers for stockpile surfaces.	40 water cannons have been installed along Conveyor 484 (CV484). Construction confirmed in Table 1 (Page 3) and Figures 4 and 5 (Pages 11 and 12) of the report <i>Works</i> Approval <i>W6142/2018/1</i> – South Flank– Compliance Report Systems B and D).	These controls were verified during commissioning Table 1 (Page 1) and Figures 2 and 3 (Pages 4 and 5) of the report <i>W6142 Commissioning</i> <i>Compliance Report (Category</i> <i>5 Infrastructure) Systems B</i> <i>and D.</i>

Dust monitors have also been installed as part of the Dust Management and Monitoring Plan and are shown in Schedule 1: Maps, Figure 1 of the licence with the ambient air quality monitoring to date shown in Table 3. The results obtained appear to be in line with modelling conducted.

Highway Visibility Trials

The dust visibility trials are a requirement of the works approval W6142/2018/1 and the Dust Management and Monitoring Plan.

The stages include:

- Stage 1: Installation and Performance Testing;
- Stage 2: Development of alerts and triggers; and
- Deployment along the Great Northern Highway.

Stage 1 is now complete. Stage 1 involved the testing done along existing MAC haul roads. Stage 2 (development of alerts and triggers) has commenced with:

- The visibility sensor and E-sampler recently being moved from their original location (nearer to operations) close to SFAQRT001; and
- A number of potential dust monitor locations being identified along Great Northern Highway. The next step of Stage 2 is working with Main Roads WA to install trial monitors at these locations.

Monitoring Station	Туре	Averaging Period	East (m)	North (m)	Operational Start Date	Data Availability	2020		2021	
Station		renou			Start Date	Availability Start Date	Annual 24hr Average	Data Availability (%)	Annual 24hr Average	Data Availability (%)
Monitor 1 SFAQRT001	BAM 1020 unit – PM ₁₀	10 min and 1 hour	685,185.27	7,457,018.15	17/03/2020	17/03/2020	34	74%	48	89%
Monitor 2 SFAQRT002	BAM 1020 unit – PM ₁₀	10 min and 1 hour	685,859.36	7,455,969.84	09/05/2020	09/05/2020	82	89%	107	96%
Monitor 3 SFAQRT003	ES 642 – PM ₁₀	10 min and 1 hour	709,286.08	7,455,619.76	N/A	N/A	Note this is not included in the summary table as it is not a BAM (Australian standard monitor) and 1 hour data is unavailable			
Monitor 4 SFAQRT004	BAM 1020 unit – PM ₁₀	10 min and 1 hour	705,243.09	7,453,183.25	09/05/2020	09/05/2020	54	96%	52	99%
Monitor 5 SFAQRT005	BAM 1020 unit – PM _{2.5}	10 min and 1 hour	705,236.02	7,453,191.10	N/A	N/A	Note this is a PM2.5 monitor which was, until May 2020 known as ACAQRT0014, before being relocated to its current position. Our Air Quality Team is currently unable to access its data.			

Table 3: Ambient air quality monitoring PM₁₀ (µg/m³)

2.2.2 Category 54 C50K Biomax WWTP

Works approval W6327/2019/1, issued on 11 March 2020, authorised the construction of a C50K Biomax WWTP and associated irrigation field (5,120 m²) at the Ore Handling Plant 3 (OHP3) (Stage 1) at Mining Area C operations (this is South Flank processing infrastructure to be transferred across to the licence following time limited operations under works approval W6142/2018/1). Following the granting of the works approval the WWTP vendor advised that the treated wastewater quality outlined in the original works approval application supporting documents (and conditioned within the works approval) cannot be achieved by the C50K Biomax WWTP unit. In addition, the potential future use of the WWTP has changed and therefore a possible increase in the maximum throughput was required. The works approval was amended on 3 September 2020 to:

- update the water quality limits as the vendor supplying and installing the C50K Biomax WWTP advised that the treated water quality specified cannot be achieved. Limits were revised, however, continue to comply with the standards outlined within the ANZECC Guidelines for Sewage Systems – Effluent Management (1997);
- add a second stage of construction (Stage 2) to the irrigation field to enable the facility to be expanded to the full capacity of the C50K Biomax WWTP (50 m³/day) should this be required in the future; and
- change "sub-surface drippers" to "sub-soil drippers".

The Environmental Compliance Report for Stage 1 was submitted to DWER on 18 February 2021, with no deviations noted.

The Environmental Commissioning Report was submitted to DWER on 4 June 2021. The Licence Holder declared non-compliance with Condition 10(d)(i) as TSS, TN, TP, Thermotolerant coliforms exceed the limits in the works approval (indicated in red in Table 4). In response, the Licence Holder increased the frequency of monitoring during time limited operations, authorised under W6327/2019/1, to monthly, as opposed to the fortnightly monitoring that occurred during the commissioning period. The Licence Holder has installed additional infrastructure to the 50K Biomax WWTP (Busch Blower, IBC unit and additional dosing pump) to correct the water quality issues. Monthly monitoring will continue until the plant is performing correctly.

Date	Units	18/03/2021	21/04/2021	03/06/2021	08/06/2021	27/07/2021	Limit
рН	pH units	7.7	7.2	6.6	6.5	6.5	-
5-day Biochemical Oxygen Demand (BOD5)	mg/L	13	<5	<5	<5	56	<20
Total suspended solids (TSS)	mg/L	<5	<5	<5	38	12	<30
Total nitrogen (TN)	mg/L	21	57	60	74	120	<20
Total phosphorus (TP)	mg/L	2.6	12	19	22	24	<6

Thermotolerant coliforms	cfu/100mL	30	210	<10	<10	1400	<10
Residual chlorine (in field analysis)	mg/L	0.23	0.34	6	1.46	<0.01	-

Stage 1 has already been constructed and is now to operate under the licence. Stage 2 construction is to be transferred from the works approval to the licence as part of the amendment.

2.3 Part IV of the EP Act

Ministerial Statement - MS1072 dated 20 February 2018 approved the revised proposal to mine the Mining Area C Northern Flank and Southern Flank orebodies. This replaced former MS 491 authorising the 'Multiple Iron Ore Mine Development, Mining Area C – Northern Flank, 100 km north-west of Newman.

(Note: 'Water usage and dewatering requirements' was removed as a Part IV Key Characteristic in March 2014 as 'conservation values are managed under the Life of Mine Environmental Management Plan; dewatering and discharge can be managed under other legislation').'

Central Pilbara Water Resource Management Plan Version 3.4 submitted to DWER Part IV of the EP Act for review on 1 March 2019 and endorsed 9 April 2019 (BHP Billiton, 2019).

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 operation which have been considered in this Amendment Report are detailed in Table 5 below. Table 5 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Emission	Sources	Potential pathways	Proposed controls
Category 5 Sys	stem B and D		
Dust	Movement of iron ore by conveyors and transfer points, train loadouts and at stockyards.	Air/windborne pathway	 Automated dust suppression water cannons installed, able to wet the stockpiles and surrounding areas (more specific details are provided in Table 2); Dust monitoring is shown in Table 3; and

Table 5: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls				
			• Visibility trials with Main Roads WA (see Section 2.2.1).				
Potentially contaminated stormwater (sediment and	Stormwater drainage containing sediment and hydrocarbons through the vicinity of	Direct discharges	• New drains and culverts have been installed under the existing conveyors at the western end to divert water away from the new work areas;				
hydrocarbons)	the ore processing facilities		 Perimeter drains have been constructed around the stockyard to divert water away from the infrastructure; and 				
			• The eastern side of the Stockyard includes a series of breaks in the windrows to allow runoff from the stockyard floor to flow into the Mining Area C plant diversion drain.				
Category 54 South Flank WWTP							
Odour	Operation of the	Air/windborne	Packaged WWTP with enclosed tanks;				
	South Flank WWTP and irrigation field	pathway	• Sludge will be removed when required by a licensed contractor and disposed of to an authorised landfill in accordance with the <i>Environmental</i> <i>Protection (Controlled Waste)</i> <i>Regulations 2004;</i>				
			• Effluent treatment to a standard suitable for irrigation to which may minimise concentration of odorous compounds; and				
			Screened out due to location of the premises is a significant distance from receptors.				
Discharge of untreated / partially treated	Overtopping / leaks of WWTP tanks resulting in	Direct discharges	 Location of premises on low permeability geology with a significant separation from groundwater; 				
wastewater to land as a result of spills/ unintended	wastewater containing high levels of nutrients impacting the health		 WWTP pump-out tank is fitted with a tank high level alarm to enable the system to be managed to prevent the facility overtopping; and 				
release of wastewater from WWTP	of surrounding vegetation and soils		Daily inspection of WWTP.				
Discharge of treated wastewater to land (irrigation field)	Pipeline leaks resulting in treated effluent being released to land which may impact the health of surrounding	Direct discharges	Pipes carrying treated wastewater are below ground to minimize disturbance of pipeline.				

Emission	Sources	Potential pathways	Proposed controls
	vegetation and soils		
	Pooling or	Direct discharges	 Irrigation spray-field sited in an area with high evaporation rate which will reduce likelihood of pooling/waterlogging;
	waterlogging of soils within irrigation area resulting in runoff into surrounding		 Flow meter installed at discharge pipe to ensure approved volume to irrigation field is not exceeded;
	areas (overland flow)		 Irrigation area surrounded by a 10 cm earthen bund to minimize runoff; and
			• Stock fencing around the irrigation area.
	Nutrient loading of soils within spray field due to excess disposal of treated wastewater		 Irrigating over sufficient area to prevent excess nutrient loading;
			 Quarterly monitoring of effluent quality to ensure it meets expected nutrient concentrations; and
			 Additional parts need to be installed (Busch Blower, IBC unit and additional dosing pump) to correct the water quality issues.
	Seepage of treated wastewater to groundwater	Infiltration	• Screened out at there is there is not considered to be a pathway for treated wastewater emissions to groundwater due to distance (~70 mbgl).

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 6 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 6: 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.14 km from the WWTP.14.8 km from System B & D.
Great Northern Highway (visibility issues to traffic)	100 m from premises boundary. 16.3km from System B & D.

Environmental receptors	Distance from prescribed activity
PEC – Priority 3: Coondewanna Flats ((Coondewanna Flats and Wanna Munna Flats) Priority 3(i))	200 m from premises boundary. 5.5 km from ore processing facilities. Adequately managed under MS 1072.
Groundwater	Hamersley – Fractured Rock Aquifer. Depth to groundwater approximately 90 m.
Surface water	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 PEC. The closest water feature to the area of the Putrescible Landfill Expansion is a non-perennial drainage line located approximately 300m east of the western edge of the facility.

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 7.

The Revised Licence L7851/2002/6 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Categories 5, 6, 54 and 63.

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

Risk Event					Risk rating ¹	Licence	Conditions ² of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood	Holder's controls sufficient?		
Operations	Operations							
	Dust ore poir	Movement of iron ore by conveyors and transfer points, train loadouts and at stockyards	Rio Tinto Iron Ore's Hope Downs Ore Mining Operation and village	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 2, Table 2 Infrastructure and equipment requirements Requires maintenance of dust controls. Condition 31, Table 20 Monitoring of ambient air quality Requires PM ₁₀ monitoring near the two receptors. Condition 36, Table 21 Annual Environmental Report Monitoring results for PM ₁₀ air quality.	N/A
Category 5 Inclusion of System B and D Potentially contaminated stormwater (sediment and hydrocarbons)			Great Northern Highway (visibility issues to traffic)	Refer to Section 3.1	C = Severe L = Unlikely High Risk	Y	Condition 31, Table 20 Monitoring of ambient air quality Requires PM ₁₀ monitoring near the two receptors. Condition 36, Table 21 Annual Environmental Report Monitoring results for PM ₁₀ air quality.	N/A
	Stormwater drainage containing sediment and hydrocarbons through the vicinity of the ore processing facilities	Coondewanna Flats - Priority 3 PEC	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 2, Table 2 Infrastructure and equipment requirements Requires maintenance of stormwater controls.	N/A	
Category 54 Inclusion of South Flank WWTP and irrigation area	Discharge of untreated / partially treated wastewater to land as a result	Overtopping / leaks of WWTP tanks resulting in wastewater containing high levels of nutrients	Vegetation and soils	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1, Table 1 Production of design capacity limits Limits capacity of WWTP. Condition 2, Table 2 Infrastructure and equipment requirements	N/A

Table 7. Risk assessment of potential emissions and discharges from the Premises during operations

Risk Event					Risk rating ¹	Licence		Justification
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood	Holder's controls sufficient?	Conditions ² of licence	for additional regulatory controls
	of spills/ unintended release of wastewater from WWTP	impacting the health of surrounding vegetation and soils					Requires tank high level alarm to enable the system to be managed to prevent the facility overtopping. Condition 3, Table 3 Waste acceptance criteria Limits capacity of WWTP. Condition 10 stipulates WWTP and irrigation area management requirements.	
		Pipeline leaks resulting in treated effluent being released to land which may impact the health of surrounding vegetation and soils	Vegetation and soils	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 2, Table 2 Infrastructure and equipment requirements Requires pipes carrying treated wastewater to be below ground to minimize disturbance of pipeline.	N/A
	Discharge of treated wastewater to land (irrigation field)	Pooling or waterlogging of soils within irrigation area resulting in runoff into surrounding areas (overland flow)	Vegetation, soils and surface water	Refer to Section 3.1	C = Minor L = Possible Medium Risk	Y	Condition 1, Table 1 Production of design capacity limits Limits capacity of WWTP. Condition 2, Table 2 Infrastructure and equipment requirements Requires earthen bund to minimize runoff and irrigation over sufficient area to prevent excess nutrient loading. Condition 3, Table 3 Waste acceptance criteria Limits capacity of WWTP. Condition 5, Table 4 Waste Processing Sewage is included requiring Biological, physical and chemical treatment. Condition 10 stipulates WWTP and irrigation area management requirements. Condition 12, Table 7 Infrastructure to be	N/A

Risk Event	Risk Event			Risk rating ¹	Licence		Justification	
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood	Holder's controls sufficient?	Conditions ² of licence	for additional regulatory controls
							constructed Design and construction requirements transferred from the works approval to the licence. Condition 19, Table 11 Emissions to land Addition of L21 discharge point for South Flank WWTP. Condition 25, Table 14 Monitoring of emissions to land Addition of L21 monitoring point for South Flank WWTP. Condition 36, Table 21 Annual Environmental Report Monitoring results and comparison against the National Water Quality Management Strategy Australian Guidelines for Sewerage Systems – Effluent Management (Agriculture and Resource Management Council of Australia and New Zealand, Australian and New Zealand Environment and Conservation Council, 1997) and previous monitoring results. Condition 38, Table 23 Notification requirements Compliance Report for South Flank WWTP	
							Compliance Report for South Flank WWTP infrastructure.	
		Nutrient loading of soils within spray field due to excess disposal of treated wastewater	Vegetation and soils	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1, Table 1 Production of design capacity limits Limits capacity of WWTP. Condition 3, Table 3 Waste acceptance criteria Limits capacity of WWTP. Condition 5, Table 4 Waste Processing Sewage is included requiring Biological, physical and chemical treatment. Condition 10 stipulates WWTP and irrigation area management requirements.	N/A

Risk Event	Risk Event		Risk rating ¹ Licence		Justification			
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls	C = consequence L = likelihood	Holder's controls sufficient?	Conditions ² of licence	for additional regulatory controls
							Condition 12, Table 7 Infrastructure to be constructed Additional parts (Busch Blower, IBC unit and additional dosing pump) Design and construction requirements transferred from the works approval to the licence.	
							Condition 19, Table 11 Emissions to land Addition of L21 discharge point for South Flank WWTP.	
							Condition 36, Table 21 Annual Environmental Report Monitoring results and comparison against the National Water Quality Management Strategy Australian Guidelines for Sewerage Systems – Effluent Management (Agriculture and Resource Management Council of Australia and New Zealand, Australian and New Zealand Environment and Conservation Council, 1997) and previous monitoring results.	
							Update on improvements to L21 monitoring results.	
							Condition 38, Table 23 Notification requirements Compliance Report for South Flank WWTP infrastructure.	

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 8 provides a summary of the consultation undertaken by the department.

Table 8: Consultation

Consultation method	Comments received	Department response
Licence Holder was provided with draft amendment on (02/11/2021)	Comments received 16/11/2021 Refer to Appendix 1	Comments received 16/11/2021 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 9 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.

Existing condition	Condition summary	Revised licence condition	Conversion notes
N/A	N/A	N/A	"shall" updated to "must" as per current format and wording
Cover page	Licence Holder Prescribed premises category description	N/A	BHP Billiton Iron Ore Pty Ltd modified to BHP Iron Ore Pty Ltd. Category 54 assessed production capacity updated from 1,110 m ³ /day up to 1,138 m ³ /day.
N/A	Contents	N/A	Deleted as per current licensing format.
N/A	Introduction	N/A	Deleted as per current licensing format.
N/A	Licence history	Licence history	Administrative changes.
1.1.1	Interpretation	Interpretation	Updated as per current licensing format.
1.1.2	Definitions	Definitions	Moved to the back of the Licence, now Table 22.
1.1.3	Australian or other standard	Interpretation	Condition deleted and now included in the updated 'Interpretation' section as

Table 9: Summary of licence amendments

			per current licensing format.
1.1.4	Reference to code of practice	Interpretation	Condition deleted and now included in the updated 'Interpretation' section as per current licensing format.
1.2.1	Recording and investigating exceedances	39, Table 22	Condition and table numbers changed only.
N/A	Infrastructure and equipment requirements	2, Table 2	Requirements for the Biomax WWTP, System B & D and the Putrescible Landfill. Please note that this table is not reflective of all infrastructure on site, and only the infrastructure transferred from W6142 in this assessment is listed.
1.2.2, Table 1.2.1	Waste acceptance criteria	3, Table 3	Category 54 assessed production capacity updated from 1,110 m ³ /day up to 1,138 m ³ /day.
1.2.3	Waste acceptance criteria	4	Condition number changed only.
1.2.4, Table 1.2.2	Waste processing	5, Table 4	Condition and table numbers changed only.
1.2.5	Landfill management	6	Condition number changed only.
1.2.6, Table 1.2.3	Cover requirements	7, Table 5	Condition and table numbers changed only.
1.2.7	Unauthorised landfill access	8	Condition number changed only.
1.2.8	Wind-blown waste	9	Condition number changed only.
1.2.9	WWTP management	10	Condition number changed only.
1.2.10, Table 1.2.4	Production or design capacity limits	1, Table 1	Category 54 assessed production capacity updated from 1,110 m ³ /day up to 1,138 m ³ /day.
1.2.11, Table 1.2.5	Containment infrastructure	11, Table 6	L17 Central Sediment Basin discharge point removed.
1.2.12, Table 1.2.6	Infrastructure to be constructed	12, Table 7	L17 Central Sediment Basin discharge point removed. Additional parts (Busch Blower, IBC unit and additional dosing pump)

3.2.1, Table 3.2.1	Monitoring of point source emissions to groundwater	24, Table 13	Replace the references to monitoringboreHGSL0012Mwith
3.1.4	Calibration	23	Updated as per current format and wording.
3.1.3	Calibration	23	Updated as per current format and wording.
3.1.2	Condition number changed only.	22	Updated to as per current format and wording.
3.1.1	Sampling	21	Condition number changed only.
2.3.2, Table 2.3.2	Emission limits to land	20, Table 12	Condition and table numbers changed only.
2.3.1, Table 2.3.1	Emissions to land	19, Table 11	L17 Central Sediment Basin discharge point removed. Addition of L21 discharge point for South Flank WWTP.
2.2.3, Table 2.2.3	Management actions	18, Table 10	Replace the references to monitoring bore HGSL0012M with replacement bores HGSL0012M1 and HGSL0012M2.
2.2.2, Table 2.2.2	Point source emission limits to groundwater	17, Table 9	Condition and table numbers changed only.
2.2.1, Table 2.2.1	Emission points to groundwater	16, Table 8	Condition and table numbers changed only.
2.1.1	Recording and investigating exceedances	39, Table 22	Condition and table numbers changed only.
1.2.17	Mobile crushing and screening plants	15	Condition number changed only.
1.2.16	Putrescible landfills	N/A	Removal of constructed infrastructure.
1.2.15	Discharge points L15 and L19	14	Condition number changed only.
1.2.14	Discharge points L16 and L17	13	L17 Central Sediment Basin discharge point removed.
1.2.13	MAC WWTP	N/A	Removal of constructed infrastructure.
			Removal of constructed infrastructure.
			Stage 2 transferred from works approval to licence.

			replacement bores HGSL0012M1 and HGSL0012M2.
3.3.1, Table 3.3.1	Monitoring of emissions to land	25, Table 14	L17 Central Sediment Basin discharge point removed.
			Addition of L21 monitoring point for South Flank WWTP.
			Addition of Note 1 to TDS.
3.4.1, Table 3.4.1	Monitoring of inputs and outputs	26, Table 15	Condition and table numbers changed only.
3.5.1, Table 3.5.1	Ambient groundwater limits	27, Table 16	Addition of Note 2: Water quality monitoring is not required if a bore is dry.
3.5.2, Table 3.5.2	Monitoring of ambient groundwater quality	28, Table 17	Addition of Note 2: Water quality monitoring is not required if a bore is dry.
3.5.3, Table 3.5.3	Monitoring following groundwater trigger exceedance	29, Table 18	Condition and table numbers changed only.
3.5.4, Table 3.5.4	Monitoring of Packsaddle Infiltration Ponds Vegetation Monitoring Program	30, Table 19	Condition and table numbers changed only.
N/A	Monitoring of ambient air quality	31, Table 20	Addition of PM ₁₀ monitoring.
4.1.1	Information and records	32, 33, 34 and 35	Updated as per current format and wording.
4.2.1, Table 4.2.1	AER	36, Table 21	Updated as per current format and wording.
			L17 Central Sediment Basin discharge point removed.
			Addition of L21 monitoring point for South Flank WWTP.
			Update on improvements to L21 monitoring results.
4.2.2, Table 4.2.2	Non-annual reporting requirements	37, Table 22	Condition and table numbers changed only.
4.3.1, Table 4.3.1	Notification requirements	38, Table 23	Removed repeated row for Compliance Report.
			Updated to include Compliance Report for South Flank WWTP infrastructure.
Schedule 1:		Schedule 1: Maps	Relabeled with Figures.
Maps	points and monitoring points		Figure 1 updated to include new infrastructure.

			Figure 2 updated to remove L17 Central Sediment Basin discharge point.
			Figure 6 removed as shown in Figures 1 and 2.
Schedule 2: Reporting & notification forms	Notification Form updated	Notification Form updated	Notification Form updated.

References

- 1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
- 2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
- 3. DWER 2020, Guideline: Risk Assessments, Perth, Western Australia.
- 4. BHP Iron Ore Pty Ltd, Application to Amend L7851 MAC / South Flank to add the C50K Biomax, 01/07/2021.
- 5. BHP Iron Ore Pty Ltd, Updated Application Form for L7851 Mining Area C, 06/09/2021.
- 6. BHP Iron Ore Pty Ltd, RE: APPLICANT NOTIFICATION NOTICE OF PROPOSED AMENDMENT TO LICENCE L7851/2002/6, 16/11/2021.

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

Condition	Summary of Licence Holder's comment	Department's response
Licence history	Update map references to:	Updated as requested.
	Figure 1: (MAC_009LA_001_Rev AC _0); and	L17 Central Sediment Basin discharge point removed.
	Figure 2 (MAC_009LA_002_Rev AB _0)	
	Updated maps have been provided that remove L17 and add in dust monitor names	
	A number of points were added to the licence as a contingency when the Water Planning Team was uncertain of where the points would need to be located (due to shifting waste rock dumps and progression of the mine plan). The Water Planning Team have now identified that they will not require this point to be constructed as an alternative discharge location and it can be removed from the licence.	
Condition 2, Table 2	C50K Biomax WWTP and Irrigation Area	Updated as requested.
	Remove the following requirements:	
	 Location of premises on low permeability geology with a significant separation from groundwater; 	
	Daily inspection of WWTP.	
	The requirements detailed here are construction as opposed to maintenance requirements. The location cannot be changed without a works approval.	
	The WWTP does not require daily inspections. The facility has been constructed and no faults (associated with leaks) have been detected.	
	Reword the following:	

Condition	Summary of Licence Holder's comment	Department's response
	• WWTP pump-out tank is fitted with a tank high level alarm is to be maintained to enable the system to be managed to prevent the facility overtopping.	
	The high level alarm is already fitted therefore the condition should relate to maintenance of the alarm.	
	Irrigation Area	
	Remove the following requirements:	
	• 5,120 m ² in size;	
	Pipes carrying treated wastewater are below ground to minimize disturbance of pipeline;	
	 spray-field sited in an area with high evaporation rate which will reduce likelihood of pooling/waterlogging; 	
	Irrigating over sufficient area to prevent excess nutrient loading.	
	The requirements detailed here are construction as opposed to maintenance requirements. The location cannot be changed without a works approval.	
	Reword the following:	
	Flow meter installed at Discharge pipe flow meter to be maintained to ensure approved volume to irrigation field is not exceeded;	
	 Irrigation area surrounded by a 10 cm earthen bund around the irrigation area to be maintained to minimize runoff; 	
	• Stock fencing around the irrigation area to be maintained ;	
	These items are constructed therefore the condition should relate to their maintenance not construction.	
	Putrescible landfill	
	Reword the following:	
	 Maintenance of The four (4) landfill trenches are to not exceed measuring 200 m long, 25 m wide and 2.5 m deep; 	
	Current wording almost implies all trenches need to be open and	

Condition	Summary of Licence Holder's comment	Department's response
	maintained at their full length.	
Condition 7, Table 5	Cover Requirements Change the reference to Table 1.2.2 to Table 4 Table 1.2.2 is now Table 4	Updated as requested.
Condition 11, Table 6	Containment Infrastructure Remove emission Point L17. Construction (and subsequent operation) of Point L17 is no longer required.	Updated as requested.
Condition 12, Table 7	Infrastructure to be constructed Remove emission Point L17. Construction (and subsequent operation) of Point L17 is no longer required.	Updated as requested.
Condition 13	 Compliance reporting Remove emission Point L17. Construction (and subsequent operation) of Point L17 is no longer required. 	Updated as requested.
Condition 19, Table 11	 Emissions to land Reword the following: Discharge point to South Flank MAC Rail Loop WWTP irrigation area Treated effluent from the South Flank MAC Rail Loop WWTP This relates to the wording earlier in the licence and will prevent confusion given the facility is not located within the South Flank Project Area. Remove emission Point L17. Construction (and subsequent operation) of Point L17 is no longer required.	Updated as requested.

Condition	Summary of Licence Holder's comment	Department's response
Condition 25, Table 14	Monitoring of emissions to land	Updated as requested.
	Remove emission Point L17.	
	Construction (and subsequent operation) of Point L17 is no longer required.	
	Apply note 1 to the Total Dissolved Solids monitoring for Point L7.	
	TDS is the only monitoring requirement for L7. This monitoring can be accurately determined using a calibrated a hand machine.	
Condition 36, Table 21	Condition 25, Table 14:	Updated as requested.
	Annual Environmental Report	
	Reword cell:	
	L8-L10, L11 (or L20), L12, and L15, L16 , L18 and-L19 – Monitoring results and comparison of results against previous monitoring results. Details of investigations conducted, including outcomes, environmental impacts and remedial actions, in relation to exceedances and a discussion of any trends identified.	
	Construction (and subsequent operation) of Point L17 is no longer required.	
	Condition 34:	
	Compliance	
	Reword cell:	
	Compliance audit	
	Makes a clearer link back to the requirement of Condition 34.	
Condition 37, Table 22	Condition or Table	Updated as requested.
	 For the row related to "Commissioning report for the infrastructure" remove the references to Condition 0. Conditions 0, 13, 14, 0 and 15 	
	Error in referencing	
Condition 38, Table 23	Notification requirements: Calibration	Updated as requested.

Condition	Summary of Licence Holder's comment	Department's response
	Reword cell to:	
	Calibration report where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements	
	Condition 3.1.4 has been removed. This condition required calibration reporting only when calibration could not be achieved or a discrepancy occurred. With this condition removed the wording in Table 23 requires all calibration reports to be provided to the CEO as soon as practicable.	
Schedule 1: Maps, Figure 1	Emissions to Land	Updated as requested.
	Update Figure 1 with:	
	the location of emission Point L17 removed; and	
	the dust monitor names added as detailed in Table 20	
	Construction (and subsequent operation) of Point L17 is no longer required.	
Schedule 1: Maps, Figure 2	Emissions to Land	Updated as requested.
	Update Figure 2 with emission Point L17 removed.	
	Construction (and subsequent operation) of Point L17 is no longer required.	
Schedule 1: Maps, Figure 6	Table 20	Updated as requested.
	Remove current Figure 6	
	Figure 6 is redundant as the plant, emission points and dust monitors are shown in the updated Figures 1 and/or 2.	

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval					
		Relevant works approval number:		None	
		Has the works approving the works approved the works approximately approxi	oval been complied	Yes □	No 🗆
Licence		Has time limited oper works approval dem acceptable operatio	nonstrated	Yes □	No 🗆 N/A 🗆
		Environmental Com Critical Containmen Report submitted?		Yes □	No 🗆
		Date Report receive	ed:		
Renewal		Current licence number:			
Amendment to works approval		Current works approval number:			
Amendment to licence		Current licence number:	L7851/2002/6		
Amendment to licence	\boxtimes	Relevant works approval number:		N/A	
Registration		Current works approval number:		None	
Date application received		01 July 2021			
Applicant and Premises details					
Applicant name/s (full legal name/s)		BHP Iron Ore Pty Ltd			
Premises name		Mining Area C Project			
Premises location		Mining Area C Project Mining Tenement ML281SA NEWMAN WA 6753			
Local Government Authority		SHIRE OF EAST PILBARA			
Application documents					
HPCM file reference number:		A2030283			
Key application documents (additional to application form):		Supporting Documentation			
Scope of application/assessment					

	 Licence amendment Operation of Categories 6, 54 and 63: Adding the following recently commissioned infrastructure: Stage 1 of the MAC Rail Loop C50K Biomax approved under Works Approval W6327/2019/1; and Stage 2 (expanded irrigation field) of Works Approval W6327/2019/1 to Table 1.2.6 Environmental Licence L7851/2002/6.
Summary of proposed activities or changes to existing operations.	 Category 6: Making the following monitoring bore changes: Replace the references to monitoring bore HGSL0012M with replacement bores HGSL0012M1 and HGSL0012M2; and Adding a note to Tables 3.5.1 and 3.5.2 to the affect that that water quality monitoring is not required if a bore is dry.
	 Category 54: Increase the limit of Category 54 by 28 m³/day to a total of 1,138 m³/day to allow for operation of the C50K Biomax constructed under Works Approval W6327/2019/1; and Add the location of the C50K Biomax and associated spray field (L21) to Figure 1 (MAC_009LA_001_RevA_0) and Figure 2 (MAC_009LA_002_RevA_0).
	Category 63: • Remove the location inert landfill at the MAC Rail Loop from Figure 1 (MAC_009LA_001_RevA_0).as this has been closed and rehabilitated.

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

Table 1: Prescribed premises categories

Table 1: Prescribed premises categorie	55		
Prescribed premises category and description		oosed Assessed production esign capacity	Proposed changes to the production or design capacity (amendments only)
Category 5: Processing or beneficiation of metallic or nonmetallic ore	71,000,000 tonnes per Annual Period		N/A
Category 6: Mine dewatering	34,9 Peri	31,000 tonnes per Annual od	N/A
Category 12: Screening, etc. of material	2,00 Peri	0,000 tonnes per Annual od	N/A
Category 52: Electric power generation	20 N	IW	N/A
Category 54: Sewage facility	1,11	0 m³ per day	1,138 m³/day
Category 63: Class I inert landfill site	25,0	00 tonnes per Annual Period	N/A
Category 73: Bulk storage of chemicals etc.	10,0	00 m3 in aggregate	N/A
Category 85B: Water desalinisation plant	0.9125 gigalitres per Annual Period		I N/A
Category 89: Putrescible landfill site	5,00	0 tonnes per Annual Period	N/A
Legislative context and other approvals	6		
Has the applicant referred, or do they intend to refer, their proposal to the E 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: MS1072 EPA Report No: 1610
Has the proposal been referred and/or assessed under the EPBC Act?		Yes 🗆 No 🛛	Reference No: N/A
Has the applicant demonstrated occupancy (proof of occupier status)?		Yes ⊠ No □	Certificate of title □ General lease □ Expiry: Mining lease / tenement ⊠ Expiry: Other evidence □ Expiry:
Has the applicant obtained all relevant planning approvals?		Yes 🛛 No 🗆 N/A 🗆	Approval: Expiry date: If N/A explain why?

	1	г
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes 🗆 No 🛛	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes 🗆 No 🛛	Application reference No: N/A Licence/permit No: N/A 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 🗆	Application reference No: N/A Licence/permit No: GWL 110044(10)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes □ No ⊠	Name: N/A Type: N/A Has Regulatory Services (Water) been consulted? Yes I No I N/A I Regional office: North West
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 <u>WQPN 25</u>)? Yes No N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous</i> <i>Goods Safety Act 2004, Environmental</i> <i>Protection (Controlled Waste) Regulations</i> <i>2004, State Agreement Act xxxx</i>)	Yes ⊠ No □	Iron Ore (Mount Goldsworthy) Agreement Act 1964 Dangerous Goods Safety Act 2004 Dangerous Goods Licence DGS017237 Environmental Protection (Controlled Waste) Regulations 2004
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 <i>Contaminated Sites Act 2003</i> ?		Site ID: 10797 Description: Coondewanna Airport Classification: Information Request Date of classification: N/A Site ID: 5154
	Yes ⊠ No □	Description: Marillana Creek (Yandi) Iron Ore Mining Operation. BHP Billiton Iron Ore. Mining Lease 270SA and 47/292.
		Classification: possibly contaminated – investigation required (PC–IR)
		Date of classification: 03 December 2014